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THE NATURE OF THE CANCEROUS PROCESS.*

ROSWELL PARK, A.M., M.D.

Professor of Surgery, Medical Department, University of Buffalo.

BUFFALO, N. Y.

Like a huge and frowning sphinx at the very gateway or entrance to the field of surgical pathology has stood for centuries the great problem of the nature of cancer. This has, at least until recently, remained the inscrutable mystery of ages, although, like the great sphinx at Gheizeh, it has been always a target for shafts of all kinds. Almost every theory which the ingenuity of the human race could conceive has been advanced to account for the existence of cancer, while each theory has been ardently supported until proven unsatisfactory, or often much longer. To-day, while we desire always to pay due deference to the scholars and thinkers of times past, the only hypotheses which are even worth mentioning in this connection can be characterized as the dietetic, the embryologic, the irritation, and the parasitic theories. The dietetic theory is of importance only in case we may succeed in maintaining the parasitic nature of the disease, when it may become a subsidiary question as to whether certain raw or uncooked food may furnish at least some of the parasites in question. So far as can be seen, only to this extent can the matter of diet have anything to do with the nature of cancer. How far it may come into consideration in explaining rapidity of growth, or even susceptibility to infection, is another matter, also of subsidiary importance.

The embryologic theory of Cohnheim was a vast stride in advance, in that it offered the explanation of many curious and anomalous growths, some of which are included among the dermoids and the teratomata, while others are more distinct neoplasms of benign nature; but nothing contained within the hypothesis can ever explain the peculiar behavior of cells which constitutes the essential feature of malignant growths. Cohnheim's explanation is sufficient to account for the presence of certain cells in unusual localities, but not for their peculiar behavior. The relation of irritation and trauma to cancer formation has always attracted attention, and to-day figures perhaps as prominently as it ever did in this respect. That malignant growths frequently do follow local injuries and local irritations is most certain. The same thing is exactly as true of certain of the infectious granulomata, especially of tubercular lesions, and viewed in its proper aspect we must hold that, while serious injuries provoke extensive and serious reaction, minor injuries are often followed by such incomplete reaction and such altered tissue relations as to leave points of least resistance, which in tuberculosis, as in cancer, are favorite foci for infection. Granting the ubiquitousness of the infectious agent, and a point of lessened resistance, one may easily appreciate the relation of trauma to cancer. The same is true of that constant but trifling traumatism which we term local irritation, as, for instance, from a dirty pipe or a jagged tooth. In connection with such irritation, there must always be an abrasion of surface, and this abrasion always invites infection. Nevertheless, the relation between irritation or trauma and cancer is an indirect one, and, while accounting for certain predisposition, does not account for the active disease.

The parasitic or infectious theory of cancer is the only one which satisfies the needs of both the pathologist and of the clinician. There has always been a strange apathy among the clinicians who meet so often the antemortem features of this disease, but who apparently remain so aghast at its mysteries that they have been content to leave its solution to the microscopist. The histologists, on the other hand, have their only opportunity of studying the disease in dried and hardened sections beneath the lens. The view points of these respective gentlemen have been so widely different that they have rarely, if ever, gotten together and discussed the situation on common ground. All examinations of fresh and still warm specimens and all interpretation of the phenomena during life have been neglected in this too minute division of labor. It was the realization of all this that impelled me years ago to outline the character of the investigation required, and to secure from the Legislature of the State of New York the facilities for furthering it. In a paper published years ago,[1] I insisted that the disease must be studied by the pathologist, the biologist, the chemist, the histologist, and the clinician, all working in close association, and not at long range. In the Laboratory that was founded through the appropriation of the New York State Legislature, provision was made for associating all these specialists, and the result has been that very marked advance has been made in our knowledge of the disease. The man who knows the disease solely by what he has learned from deadhouse specimens is in poor position to explain its course, whereas the man who has simply watched the disease during life may have strong views about its infectious nature, which, however, he can justify by nothing more than by analogy, but the combination of clinical observation with experimental and laboratory work is sure to solve this problem, if it be not already solved, in a way as brilliant and as helpful as did similar researches reveal the mystery of tuberculosis.

* Read in the Symposium on the Surgical Aspect of Carcinoma, before the Section on Surgery and Anatomy, at the Fifty-second Annual Meeting of the American Medical Association.

1. New York Medical Record.

To-day, you will with me hold this to be true, that the history of absolute failure during times past to demonstrate an intrinsic cause, combined with accurate clinical observation and constant contact with cases, with a study of the disease as it occasionally occurs in endemic form, with the arguments by analogy (upon which I shall elaborate in a moment), and with recent microscopic studies, all conspire to stamp the disease as due to an extrinsic cause, i. e., to be parasitic in origin. Thus far one may safely go without transgressing well-defined limits. Are we now able to go further and say that the parasites have been discovered? For myself, I do not hesitate to answer this positively in the affirmative; that is, I am firmly of this opinion, based upon work done elsewhere, and especially upon that done, to my own positive knowledge, in our own laboratory, and corroborated apparently by the independent investigations of Pfeiffer, Sawtschenko, Sjobring, Eisen, and most recently, of Max Schüler, whose new monograph just published is to me a striking, independent and beautifully satisfactory demonstration of every statement that has emanated from the Buffalo Laboratory.

The arguments that can be adduced in favor of the parasitic hypothesis can be summarized in brief space without consuming too much time. For this purpose, take first the argument by analogy, beginning with the lower forms of life. Tumors in trees and plants are well known to vegetable pathologists and botanists. They occur so often as to escape notice. They vary in size from the most trifling gall to those large woody masses known as xylomata, which bring about the eventual destruction of the tree. They are frequently spoken of as tree cancers. These are due almost invariably to a species of infection. In the case of the so-called galls, the infecting agent or parasite is some minute insect which disturbs cell growth and produces cell proliferation. In the oak genus alone, for instance, there are known over eighty varieties of nut galls produced in this way. In other instances the first injury is traumatism, or its equivalent, such as is produced by the freezing of water contained within the grooves of the bark and the consequent splitting open of this protective covering, with its possibility for infection of the growing wood beneath. Through this laceration infectious agents enter from without and produce similar results. When carried to the extreme, the nutrition of the limb, or of the entire trunk, may be so far disturbed as to determine the death of the whole, or a part, of the tree. Were parasitic agents entirely excluded there would be no such thing as cancer of trees. Could they be excluded, every laceration of bark would heal, as does any protected wound in animal forms, and the result would be protection from irritation and normal repair. The more one studies tumor formation in the vegetable kingdom, the more striking will this analogy become.

Comparative pathology will furnish many other arguments. Tumors are common in the lower animal forms and would be found much more so if our observations were more minute and exact. Ten years ago L. Pfieffer described, with extreme care and minute illustration, various forms of tumors occurring in many of the insects and invertebrate animals, all of which were produced by protozoa. The higher we go in the animal scale, the more closely do these tumors resemble those of human beings, until histological characteristics are almost exactly similar. One can not avoid the conclusion that tumors in animals and man are due to the same general causes. If, then, their existence in animals can be proven to be of parasitic origin, it strengthens the conclusions in favor of a similar origin for such lesions in man.

One of the strongest of all arguments, and one which is really irrefutable, is that which we may get from the study of well-known infections which produce tumor formations. Take, for instance, the so-called infectious granulomata. The essential differences between these and cancers are not their histologic structure, but the fact that we know their minute causes. These tumors which used to be included with malignant tumors have been put in a class by themselves, and their embryologic and every other characteristic taken away from them for the purpose of classification, simply because their causes are now well known; and modern writers have drawn very sharp lines between these tumors about which they have learned much and cancers about which they know but little. And yet these infectious granulomata are in many instances just as fatal as are the true cancers, and are amenable to the same methods of treatment and permit of the same general management; i. e., they are distinctly surgical lesions.

Take again the matter of metastasis. There is no known infectious disease characterized by metastasis, from the most acute of the septic or pyemic type to the slowest manifestations of tuberculosis, in which we do not regard metastatic lesions as one of the principal evidences in favor of their infectiousness. Why pathologists have been so loth to see in similar manifestations of cancer a like evidence of its own infectiousness I have never been able to understand. If it means anything in one case it certainly has exactly the same meaning in the other, and yet men have been blind to it for centuries.

Take again the matter of the local infectivity of cancerous lesions. There is the case recently reported of a woman who had an extensive epitheliomatous ulcer on the side, following a large burn. As a result of the cicatrix, her arm was bound down to her side and a cancerous ulcer appeared also on the inner side of her arm. Such a case as this means local contact infection, and is more weighty as evidence than one hundred failures to reproduce the disease by implantation. The numerous repeated and now well-known instances in which cancerous infection has followed the track of such instruments as the trocar, for example, afford other evidences whose value is undeniable. Aside from anything that the microscope may show, a few cases of this kind will have more value than all the failures of all the experimenters of the past century.

Next to the microscopic appearances of these growths, we have had almost numberless hypotheses advanced to account for the well-known fact that in and between the cells of cancerous growths are seen peculiar forms or particles which have been regarded by some as parasites, by others as products of cell degeneration, and by others yet as pure artefacts. It has been hard for observers to prove that they are cell degenerations and there are wide differences of opinion between those who hold to this view, as well as among those who regard them as parasites. Certain it is that no such appearances are noticed in healthy tissues or in the infectious granulomata or in the truly benign tumors. They must be either cell degenerations or parasites. No one has even been able to reproduce such degenerations under other circumstances, nor are they known or scarcely even named. On the other hand, exactly similar appearances

have been produced in large numbers after inoculation or experimentation. In our Buffalo Laboratory, we could show thousands of slides illustrating these familiar appearances. They are inimitable except after the introduction of cancerous material. Thus only they are reproduced.

It is true that observers have differed widely regarding their parasitic nature. Some have regarded them as low animal forms, some as low vegetable forms. Their exact nature is of secondary importance if their parasitic rôle can only be established. The first thing to prove is that cancer is of parasitic origin. Can this be done? It has been done, for instance, in the case of malaria where the parasites are seen inside as well as outside of the blood corpuscles, and, although we as yet know little, if anything, about their biologic characteristics, we nevertheless accept them as parasites. Exactly similar appearances can be noted in and around the cells of rapidly growing cancers, and especially in parts where growth is most recent and rapid. Moreover, if scrapings be taken from a cancer while still fresh and warm, there may be observed under the lens unmistakable ameboid movements of many of these bodies which, when stained in sections, are seen in locations mentioned above.

It is perhaps more or less negative evidence and yet it is perfectly proper to say that in no other way or on no other hypothesis can the peculiar appearances noted in cancer be accounted for. There is simply no other explanation which is at all satisfactory, or can be regarded as tenable.

This is not a question of bacteria. All the investigations made by bacteriologists have failed, and there is no thought now that bacteria are the cause of cancer, their presence being occasionally accidental, but nothing more. Bacteria are by no means the only possible parasites as the history of malaria has proven. It is now a question of organisms about which as yet we know very little; as little, in fact, as the profession in general knew of bacteria when Cohn first began studying them. We turn then from bacteria to some other form of parasitic life as the necessary explanation of known phenomena. Herein lies our greatest difficulty. We are as yet almost in total ignorance of these lowly forms of life and their biologic peculiarities. We do not even know that Koch's laws for the determination of the infectious nature of a given disease are valid here for these forms, since they may not fully apply to such varied conditions. Nevertheless, we may still hold to them until they are proven invalid.

For that matter, we have almost complied with these canons in our Buffalo investigations. In almost every instance, practically in every instance when conditions have been favorable, we have found organisms in cancer cases; and in practically every instance by the introduction of cultures made from these organisms we have produced fatal results in animals, although we can not truthfully say that in every instance we have produced distinct carcinomata. We do not yet know that this can be done in animals by the forms which produce it in man. We know that syphilis and various other diseases are not communicable to animals, and in the beginning of this investigation we must not be too exacting until certain other conditions are also complied with. Where we have so far failed in complying with Koch's canons lies especially in this direction, that we are unable yet to say that wherever we find the organism we find the disease. We do not yet know the cancer organism well enough to be able to identify it outside the human body, and, therefore, while this requirement has not yet been complied with, neither has it been constantly violated.

I have often heard it adduced as an argument against the parasitic theory that the duration of cancer is altogether too long to permit its recognition as an infectious disease. Such statements as these have nothing to justify them. I may be pardoned for calling attention to this fact which I have stated before, because of its importance in this connection. Infections follow no known limit nor time law. There are some which are exceedingly acute, like cholera, bubonic plague, etc.; they kill in a few hours. There are others which run their course in a few days, like pneumonia, tetanus, diphtheria, etc. Still others extend over a period of a few weeks, like typhoid fever and glanders. The time in yet others is only measured by months. This is true of actinomycosis and of tuberculosis, whereas some instances of the latter disease and syphilis extend over years. No matter how long their course may be, we do not decline to see evidences of infection therein, and so the argument against the infectious nature of cancer because it lasts sometimes so long, must fail. Cancer certainly is often as rapid as tuberculosis, even of the acute miliary form, and is usually more rapid than are syphilis or leprosy.

Leaving now the subject of minute agents, let us look at the matter from the purely clinical standpoint. What surgeon of experience can regard the various manifestations of cancer in any other light than as expressions of a slow infectious process? Take, for instance, the case of melanotic sarcoma of the leg. As he sees the gradual transmission of the disease up the limb, and becomes still later aware of the involvement of the liver, then of the lungs, and then of various other parts of the body, how can he help say but that this is a disease which travels along the same paths and after the same fashion as does tuberculosis; or when he sees cancer *en cuirasse* following an operation for cancer of the breast, how can he avoid the conviction that he has here to deal with a slowly creeping local infection which is gradually extending and traveling as only an infection can travel? It was the clinical features of this disease that impressed me with positive convictions as to its infectious character long before I attempted to judge of the same from mere microscopic study.

But, some one may ask, what about the failure of numerous experimenters to reproduce the disease by inoculation, or by implantation? I grant quite readily that until very recent times there has been almost complete disappointment in efforts in this direction. The disappointment, however, has not been so comprehensive as in the case of syphilis, since *every* effort in this direction has failed, and yet we do not deny the infectiousness of syphilis on that account. Because of the paucity of successes in this experimental work there attaches a certain suspicion or uncertainty to every alleged successful experiment. For me, however, as remarked above, one instance of cancer following the use of an instrument, along the track which it has made, is of very great value, far greater indeed than, on the other hand, would attach to one hundred failures in deliberate implantation. Failure does not prove that success may not be finally attained, whereas one positive success is indisputable. Surely clinical observation has amply established the possibility of infection with cancer. Once that be granted, the principal contention is

obtained. Failures in times past have been largely due to our ignorance regarding the biology of these minute organisms, and the conditions which favor their life or death. In our laboratory work, for instance, in Buffalo, it has been discovered that they grow best in an exceedingly weak solution, and that ordinary bacteriologic methods and culture media are absolutely inadequate. We have had best results in culture experiments by the use of an expedient suggested by Drs. Gaylord and Clewes in the use of collodion sacs. A little capsule is made of collodion; this is filled with cultures or with fresh fluids; it is sealed with collodion, then dropped into the peritoneal cavity of an animal. The organisms can not escape through the collodion, but there is sufficient osmosis of the living fluids surrounding the sac to permit them to grow, under natural conditions, and they thus undoubtedly grow in the living animal without possibility of escape. Under these circumstances, their virulence is very much enhanced, and it is found that after removal of this sac from the first animal and inoculation of its contents into a second animal, they will produce a very rapid hematogenous infection, with nodular formations in various parts of the body, corresponding exactly to acute miliary carcinosis, the nodules thus produced having often the minute character of adenocarcinoma.

It certainly is not too strong a statement, then, if I claim that in the Buffalo Laboratory Dr. Gaylord and our staff have absolutely produced adenocarcinoma by inoculation in a number of animals, and that this can now be produced in such a way as to afford unmistakable evidence of the infectivity of the disease.

When asked for a minute description of these organisms, it can scarcely yet be given. It must be enough for the present to say that they appear to belong to the protozoa, or possibly, as Schüler has hinted, to some still lower and less known animal form. They can be seen to undergo ameboid movement upon the warm stage, and careful study will reveal numerous changes which they undergo somewhat slowly, by which very positive and somewhat remarkable alterations in size, shape and general appearance are brought about. This would appear to take them out of the realm of the vegetable kingdom, and put them in that of the animal kingdom, and for the present it is enough to call them protozoa. Minute description or detailed statements can hardly be made yet, since they have to be most carefully studied, and, in fact, the whole matter of the biology of these lowly forms of animal life has to be gone over again before one talks too much about them.

These organisms, however, can be, and have been cultivated and successfully inoculated. In ordinary media they grow best in extremely weak solutions. The most successful way that has yet been devised is to deposit them in collodion sacs, as already described, in the living animal. They stand desiccation just as does vaccine lymph, and Gaylord has made some very successful experiments with lymph nodes kept dry for weeks, then rubbed up with sterilized water, and injected.

There seems to be the most absolute resemblance between results obtained in the Buffalo Laboratory and those just published by Max Schüler. There is scarcely a statement which he makes which is not corroborated by our own experiments, whereas almost everything that we have written or found is corroborated by independent statements of his own. The conditions which he portrays in his illustrations and plates are identical with those which can be seen in our forthcoming Annual Report. It seems to me that the statements of Schüler take away almost the last element of doubt which can remain as to the propriety of conclusions regarding the parasitic nature of cancer.

Of course, it is yet too soon to formulate any conclusions regarding its treatment or therapy. For the present, at least, cancer must remain, as it always has been, a surgical disease. I believe this general statement can be made, that if cancer can be recognized early, in accessible parts of the body, and be removed thoroughly, it can be absolutely cured. Unfortunately, early recognition is rare, and thorough removal too infrequent. Consequently, we have the present hideous picture of the disease displayed before the profession. For cancer in inaccessible parts of the body, diagnosis must necessarily be late, and operative treatment can benefit little, if at all. If, however, we can establish a parasitic cause and cultivate a sufficient acquaintance with the organisms at fault, it is not too much to hope that some agent, be it vegetable or mineral drug, or animal antitoxin, may yet be discovered by which the ravages of the disease may be checked or prevented. Drugs are known which destroy the protozoa that cause malaria. Let us hope that something may yet be found, and that speedily, which may have the same destructive effect upon the parasites which produce cancer, without being inimical to the animal cells of the human body. Until this can be brought about, cancer is still a surgical disease, and its discussion by this Surgical Section, or any other association of surgeons, is most proper, and in the interest of surgical science.

EARLY DIAGNOSIS IN CARCINOMA.*

CHARLES A. POWERS, M. D.

Professor of Surgery in the University of Denver; Surgeon to St. Luke's Hospital.

DENVER, COLO.

So far as our present knowledge of cancer goes the nearest approach to its successful management rests on early diagnosis, prompt and thorough operative removal of the widest possible area and a careful and systematic surveillance of the patient during the rest of his life. It would be trite to dwell on the importance of the earliest possible recognition of malignant disease. All surgeons know at what a late day the great majority of cancer cases reach the specialist. The delay is due, 1, to non-perception on the part of the patient or to his fear of being given an unpleasant report, and, 2, to lack of recognition by the medical attendant or to his delay while awaiting the appearance of positive evidences.

The first must be dealt with by the systematic instruction of the laity through suitable lectures of a popular nature, magazine articles and the like. It is the duty of those members of our profession who are competent and whose standing is such as to make their utterances carry weight to thus impress on the non-medical part of the community the importance of early attention to all lumps, growths, persistent ulcers and the like, and the securing of competent advice thereon. Such publicity is not non-professional, but is most commendable. Our brethren who are interested in the matter of pulmonary tuberculosis have accomplished great good in this way; we may learn much from them.

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Further, it is hardly necessary for me to say that our physicians as well as our surgeons should appreciate far better than they do now the vital importance of early recognition in malignant disease. Some years ago I tabulated the cases of cancer applying for treatment at the New York Cancer Hospital during a certain number of months and found that of all cases so seeking admission but 9 per cent. offered any reasonable prospect of cure even after the most radical operative procedure, and that the majority of hopeless cases had been for a longer or shorter period under the care of physicians. Must we not conclude that we, as a profession, are lax in the employment of our ordinary methods of diagnosis, that we must exercise greater care, that we must make better use of the methods which we now possess?

A comparison of the carefully made histologic report on a given neoplasm with the clinical history and examination of the case will most surely instruct the physician or surgeon, fix in him diagnostic methods and lead to the lowest possible percentage of error. Permit me before enlarging upon this thought to briefly lay before you a very few of many recent suggestions:

EXAMINATION OF THE BLOOD.

Hayem[1] states that when we are unable to obtain any physical signs of cancer of the stomach there are a number of symptoms obtainable from a study of the blood. If the latter fluid exhibits no giant and nucleated forms of red corpuscles, and no leucocytosis, we may exclude the presence of pernicious anemia. Tentacular and pseudoparasitic forms of red corpuscle with abundant hematoblasts point to cancer. Marked anemia without an anemic murmur suggests cancer.

Hayem refers to a case in which the diagnosis was correctly made by blood examination, but for the sake of absolute proof exploratory laparotomy was performed.

On the other hand, Krokiewicz, writing on "Blood State in Cancer of the Stomach,"[2] says that while much work has been done in this field the reports are conflicting. In 1898, Henry published a statement as to the value of the blood count in latent cancer of the stomach. He attempts to distinguish between this affection and progressive pernicious anemia by the number of red corpuscles in a millimeter cube. In cancer they should not fall below 1,500,000; while in the other disease they go beneath the million mark.

As is well known, several authors diagnose latent stomach cancer when the so-called digestion leucocytosis is absent and when no chlorhydric acid can be recovered from the contents of the stomach.

There is still unanimity in the belief that the hemoglobin of the blood is invariably reduced in cancer of the stomach. But we now know—contrary to what was once taught—that in simple gastric ulcer the same permanent reduction in the amount of hemoglobin occurs (it was formerly held that in simple ulcer the red cells lost in connection with vomiting were rapidly regenerated).

The author's own experiments, however, have taught him the untrustworthiness of these signs which are connected with the state of the blood and gastric juice. Thus he found digestion leucocytosis in four cases out of seventeen, and also noted the persistence of chlorhydric acid in the stomach contents in certain instances. He is therefore inclined to minimize these diagnostic resources.

EARLY DIAGNOSIS OF CANCER OF THE STOMACH THROUGH THE PRESENCE OF THE FILIFORM BACILLUS.

Ehret, assistant to Prof. Naunyn[3] of Strasburg, publishes a communication on this subject.

The study of the flora of the stomach has been largely neglected. A large variety of micro-organisms are found in the stomach contents introduced with the food and air which have been swallowed, but we now know that while the presence of a given organism in small quantities has no necessary pathologic significance, the reverse is the case when any of these organisms are found in large amounts.

The fact that any form of germ life is able to multiply within the stomach is an argument in favor of the existence of an abnormal condition of that stomach. If the normal motility and chemism of the stomach are disturbed, stagnation, etc., would contribute powerfully to the multiplication of germs; and on the other hand, these multiplied germs may themselves possess the power of causing some form of fermentation.

When the microscope shows the constant presence of a certain micro-organism in considerable amount and upon every slide examined, we may regard the germ in question as having some sort of pathogenic significance, either as cause or effect. The multiplication of germs may represent either the cause or the result of an abnormal state of the stomach.

After these preliminary notes the author proceeds with his description of the filiform bacillus. All observers in the field of pathologic fermentations of the stomach have doubtless recognized a peculiar micro-organism in cancerous stomachs—a thin, very long, thread-like bacillus present to such an extent that it occupies a large portion of the field of the microscope. This germ shows true ramification. Associated with it we find yeast, sarcinæ, and cocci and bacilli of various kinds.

Boas was the first to describe this organism in his work on diseases of the stomach and he also remarked as to the frequency of its occurrence in cancer. In 1895 Schlesinger and Kaufmann succeeded in making cultures of the germ. They also ascertained that the culture was able to cause lactic acid fermentation and thereby perhaps account for the presence of this acid in cancer. The germ grows on agar with 1 per cent. glucose, forming on the second day colonies the size of a pinhead, white, dryish and almost transparent, looking under the lens like flocculi of wool.

Some confusion may arise between the filiform bacillus and the bacillus butyricus, but the culture is shorter and less thread-like. It is often difficult to obtain the filiform bacillus in pure culture. However, it is hardly necessary to obtain cultures in order to make a diagnosis.

Ehret believes that the presence of this bacillus in the stomach contents is destined to be of great service in the early diagnosis of cancer before other symptoms are present. In the first place this germ is practically absent from the healthy stomach, both to the microscope and cultures. When present it is usually in vast amounts occupying perhaps almost an entire field of the microscope.

The author found the filiform bacillus in 29 patients at the Strasburg clinic; and in 25 of these cases cancer of the stomach was shown to be present. In the other 4 a diagnosis of cancer could not be made. It is not claimed that the bacillus is pathognomonic of cancer but of extreme stasis of the stomach such as occurs in

cancer. In the non-cancerous cases there was present a condition of pyloric stenosis, or of complete atony, as shown by the fact that the sound introduced into the fasting stomach gave exit to matters ingested many hours previous.

Ehret relates a case as follows: A woman, aged 49, always robust, began to suffer from indigestion. She received intestinal antiseptics without benefit. Two weeks later the stomach sound was used after a trial breakfast. Traces of lactic acid were found (chlorhydric acid .004). The filiform bacillus was present in great quantities. The patient was examined under narcosis after inflating the stomach with CO_2, but no evidences of cancer were found.

Operation was refused, and after six months' delay a tumor was recognized, associated with failure of the general health. The patient lived a year; after death no autopsy was obtained but no doubt could be felt in regard to diagnosis.

Ehret closes by reiterating that the discovery of the filiform bacillus in large amounts in the stomach contents justifies a diagnosis of cancer.

DIAGNOSTIC REACTION FROM THE USE OF CANCER-SERUM.

The various serums which have been put forth for the treatment of cancer, and which are thought by some to exert a specific though not a curative influence upon cancer tissue, seem at times to be accompanied by an alleged reaction when injected into the body.

Thus Bra and Mongour's[4] "nectrianine," a serum prepared from the parasite of the so-called "cancer of trees," is without effect if injected into healthy animals; but in man and animals with cancer injections produce a rise of temperature of from 1 to 3 degrees in from two to four hours. Larger doses provoke chills, quick pulse, cardiac palpitation, headache and thirst. The crisis terminates at the end of some hours in polyuria and profound sleep. Similar reactions have been claimed for other cancer serums. The latest one to be exploited is Whaeff's bird serum, made by the Pasteur Institute at Paris. Analogy between this and tuberculin as a diagnostic agent will readily be apparent.

AUTO-INOCULATION AS AN AID IN THE EARLY DIAGNOSIS OF CANCER.

Güntz[5] proposes the inoculation of suspected cancer tissue upon the bearer, on the assumption of the infectious nature of the process. He further takes into account the possible source of infection from some other person, with long interval of latency. For example, a man with an incipient, as yet unrecognizable cancer of the lip, may take his wife's nipple in his mouth and thereby propagate in her a cancer of the breast. Similarly cancer of the uterus may be due to infection from a latent focus of cancer in the husband's penis. The author's views are best shown in the following case which he reports:

A robust woman, aged 33, good family history, bore a child when 21 years old. The infant lived but eight weeks. The woman and her husband lived together for ten years after this event, and then suddenly—one year ago—she began to look miserable and prematurely old. The husband observed about this time a sort of subcutaneous itching in the inguinal region, which heralded the formation of a sebaceous tumor not connected in any way with the inguinal glands. It enlarged slowly. (Five years earlier a similar wen had appeared in the frontal region near the internal angle of the eye. This had been extirpated on suspicion of being cancerous.) Examination, however, showed that it was only a wen, and since that time there has been no tendency to recurrence in the scar.

During the past four months the husband, who cohabits regularly with his wife, noted some scalding upon urination after coitus, but without any accompanying discharge. The woman's condition, already mentioned, now compelled her to take to bed. The symptoms were those of nervous break-down of an extreme type. There was some pigmentation on the face like that seen in pregnancy. This attracted attention to the uterus. The rapid emaciation and pigmentation suggested a suspicion of cancer of the uterus, but there had been no discharge nor irregularity of the menses. Finally, however, there was a sudden escape of fluid from the uterus which indicated some ulcerative process. The diagnosis of cancer soon became apparent in the opinion of several consultants. After a normal menstruation symptoms of cancer became latent again, the woman appearing quite well. The husband had connection as usual and thereby caused his wife to bleed a little, while he suffered from the scalding of the urine afterwards.

A few days later the little wen in the husband's groin started to inflame. Within eight days it resembled a bubo and was of the size of a pigeon's egg. An artificial opening gave exit to pus. The abscess healed with persistence of an indurated node.

In the meantime it was thought best to extirpate the supposedly cancerous uterus and as a matter of fact a nodule of cancer, as yet intact, was found in the portio. The patient made a good recovery.

Güntz's article ends here abruptly with the statement that he will publish the rest of the case. This he has never done and thus his paper is somewhat obscure, but his theory seems to be as follows: Being principally a syphilographer Güntz is simply endeavoring to apply the principle of *confrontation* to cancer. If he suspects that an individual has an incipient or latent cancer he examines the persons with whom the suspect is most intimate. He is aware, of course, that in cancer of the uterus we do not find cancer of the husband's penis, but this may be due to the fact that the cancer germ does not cause a lesion at the point of contact but is absorbed and deposited elsewhere. In this locality it may not cause an outspoken cancer, but may give rise to a precancerous lesion or latent cancer, such as a wart or wen, which may remain as such through life without becoming malignant.

In his case, therefore, he believes that a latent or incipient cancer of the uterus transferred some of its germs to the male urethra, where only slight local initiation was occasioned. The germs entered the circulation or lymphatics and finally caused sebaceous tumors, which frequently become cancerous. The practical lesson here would be to consider many benign lesions as essentially precancerous, especially if there is actual cancer in some intimate. As a focus of cancer germs such a lesion should be extirpated, for if it does no harm to the bearer the germs may be transferred to some other person with a worse result.

Cabot[6] has recently made a most interesting observation on accidental inoculation in cancer. His patient was a man of 59 years with a cancer high up in the anterior wall of the rectum. Removal was made by the Kraske method. The cancer was dragged down into the posterior opening and removed through it. During this manipulation the cauliflower-like, juicy growth was rub-

bed about in close contact with the operative wound. Two years later, the patient having been quite free in the interval, a cancerous mass histologically similar to the primary disease was removed from the posterior scar where at the original operation the cancer juice had had contact. The original site was free and separated by five or six inches of healthy tissue from the secondary one. Further, the lymphatics from the primary area lead up into the lumbar glands rather than down toward the place of recurrence. The case seems plainly one of accidental auto-inoculation.

Other observations on these and similar lines might be cited did time permit. You will, perhaps, permit me to generalize the result of a careful examination of the literature, and this is to the effect that thus far nothing seems to be proven. Individual cases are given rather than series of cases. Our diagnosis of cancer must rest on our clinical appreciation of the various symptoms, this supplemented by microscopic examination.

Disparity of opinion exists as to the employment of trial excision for microscopic examination. Many surgeons resort to it as a routine measure in doubtful cases where the tissue is accessible. Others believe any incision of cancerous tissue liable to spread the disease, while in the precancerous stage the microscope may reveal nothing and thus valuable time may be lost. In this connection no less distinguished a surgeon than Jonathan Hutchinson[7] says that he has often felt it his duty to urge that the microscope is of no value in diagnosis of the precancerous stage of cancer. He has long been a warm advocate of early operation, even before a diagnosis could be made with certainty; in a well-defined case the microscope is unnecessary, in a doubtful case it can furnish us no assistance.

In other words, cancerous growths, recognized as such from their mode of growth, etc., by the educated eye, are not cancerous histologically. A negative result from the microscope begets a false security and leads to irreparable loss of time. This opinion is not intended to reflect upon the pathologist, for the precancerous stage of cancer consists almost invariably of the histological picture of chronic inflammation.

Hutchinson has recently had four cases of cancer under his care which illustrate this uselessness of the microscope. One case was a large, characteristic epithelioma of the soft palate, almost inoperable. The patient said that eighteen months before he had had a piece excised for microscopic study. The diagnosis had been that of a non-cancerous affection. Clinically he had had a white patch on his palate for at least three years. At the time the trial excision was performed the growth might have been safely removed. In another case the patient had a similar experience. An ulcer formed at the side of the tongue and a distinguished surgeon made a diagnostic excision. The pathologist reported negatively and four months' time was thereby forfeited. Diagnosis having become certain, one-half of the tongue was excised. In a third case a patient had primary cancer of the pharynx with secondary glandular enlargement. There was the same history of diagnostic excision and negative report. The fourth case was quite similar in character to the second. Since these four cases all occurred to him within one month it may be assumed that these erroneous diagnoses are being made constantly. He has himself seen many such. He once removed an entire tongue for what he diagnosed as a broken-down and suppurating cancer. The pathologist reported "no cancer, only an abscess." A few months later the glands beneath the jaw enlarged and the subsequent history of the case confirmed the diagnosis. Upon learning of this tissue the pathologist re-examined the original specimen and found evidences of epithelioma. In a case of cancer of the palm of the hand, microscopic sections of which were examined by pathologists of England, the Continent and America, there were the greatest differences in opinion, some finding evidences of syphilis. The patient died of secondary cancer.

Halsted[8] says that tumors should never be harpooned nor should pieces ever be excised from malignant growths for diagnostic purposes. He believes that there is great danger of rapid dissemination of the growth from injecting cancer of the tongue with cocain and then snipping off a piece of the tumor with the scissors.

Halsted says that in studying the published histories of cases of malignant tumors, particularly sarcoma, he has been impressed with the great number of cases in which general dissemination of the neoplasm has seemed to follow swiftly upon exploratory incisions.

On the other hand, Kelly, Halsted's colleague, seems to resort to trial excision in all doubtful uterine cases. Cullen, in his admirable work on "Cancer of the Uterus," describes at length the simple methods of removal of uterine tissues for examination. Frozen sections, he says, give satisfactory diagnosis in fifteen minutes. It is needless to say that the greatest care must be taken to prevent confusion of specimens.

Colderini (International Congress, 1900) places great dependence upon examination of the scrapings in suspected cancer of the body of the uterus. According to him it is not necessary to find fully developed cancer tissue in order to make a diagnosis. Since cancer of the body is almost always of the type known as adenocarcinoma, it is enough to find an atypical arrangement of the glandular tissue of the mucosa. He narrates a series of cases in which the diagnosis was unhesitatingly made from such atypical arrangement, and confirmed by results of operation.

I believe that I am correct in stating that at this time the majority of experienced surgeons resort to trial excision in suitable, doubtful cases. All recognize the element of error which may be present in an individual instance, yet in a series of cases a suitable piece taken from a typical portion of the growth in the presence of an experienced pathologist and at once transferred to him will give a fairly authentic diagnostic result. My own experience in this has been favorable. While on the one hand I am not certain that no avoidable spreading of the disease has been occasioned, on the other I can not recall an extension which can be so traced and I can cite a fair number of so-called "cures" of three or more years' standing, in which a positive trial excision was promptly supplemented by wide removal of the growth. These especially in cancer of the lip, skin of the extremities and face, breast and rectum. I am inclined to believe, however, that this trial excision should be avoided when possible and that it is always best to be prepared for immediate operation; the greater the surgeon's experience the greater reliance will he be able to place on his general estimate of the individual case.

It is not difficult to say that the physician or surgeon should recognize cancer by the eye and fingers as well as by the microscope, yet his ability to do this will

be in proportion to his practical experience and the careful study of his cases; we must not lose sight of the fact that in the great majority of instances early diagnosis is dependent on the family physician rather than on the skilled specialist.

As has been said, I have been personally impressed with the value of diagnostic excision. Whether or not this is wise there can be no question as to the absolute value of the most painstaking and far-reaching microscopic study of all tumor tissues after removal. This study should be made in direct connection with the history of the case and the clinical examination of the patient, and the findings should be verified by the operator himself. In the one column of his case-book may be placed his provisional clinical diagnosis; in another the pathologist's report. A comparative study of these will be productive of the greatest good. On the one hand we have the family and life history of the patient—the onset, duration and course of the growth; its general characteristics, resistance, "feel," tenderness, mobility or fixation; the condition of the skin or mucous membrane, of the deeper parts and glands; the blood examination if you like; in a word, all possible factors which can lead to provisional diagnosis. On the other hand lies the pathologist's report. Constant, comparative study of the two will lead to an increasing probability of accuracy in diagnosis.

I do not know that we can at this time go beyond this. In the smaller cities there is a great and increasing need of careful and capable pathologists. The accuracy of our work must be determined by them. Not long ago a well-known surgeon of Boston said to me as we were going through the superb Municipal Hospital there: "When Councilman came to this hospital he revolutionized our methods; we surgeons found that we had to live up to him and his work." We, whose lot is cast in the smaller places, must strive without ceasing for better laboratory work. Our laboratories must be consolidated, enlarged and endowed. It is not enough that the clinicians in the great centers should be in close touch with the pathologists; those in the minor cities and towns must enjoy a like privilege. Happily, facilities for the better training of pathologists are increasing rapidly.

In a recent presidential address before the Association of American Physicians, Professor Welch, the distinguished scientist, compared the opportunities enjoyed in this country by the men who desire to study the branches of scientific medicine and the opportunities open to those who wish to become proficient in clinical medicine and surgery. There are laboratories in this country, equal to any in the world, that are open to young men who have graduated and who wish to become teachers of anatomy, physiology or pathology. In these laboratories a young man must serve his apprenticeship, but Professor Welch says that his promotion is sure. May I not ask you whether (and this especially in the smaller places) we as clinicians recognize as we should the value and the importance of the work which these scientists do, and whether we sufficiently aid in making it possible for them to devote their lives to the purely scientific side of our calling? It is in this direction that advance is to be made, and it is in this direction that our duty lies; a duty seen by such wise and earnest men as Roswell Park, whose Buffalo Laboratory for the study of cancer attracts the attention and admiration of the medical world. Not all of us can create such laboratories, but we can all do something toward a better appreciation of the importance and value of the most painstaking, thorough and far-reaching laboratory investigation.

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SOME PHASES OF MALARIA.*

J. B. McELROY, M.D.,
STOVALL, MISS.

On February 12, of this year, I was called to come quickly to see N. M., who the messenger said was speechless. He was a well-developed, strong negro man, 60 years of age, his family history good. He had smallpox about thirty years ago, since which time he has not been sick enough to require the services of a physician. He has never had syphilis, gonorrhea, nor rheumatism. He has lived in the Mississippi Valley eleven years, during which time he has had frequent attacks of "dumb chills." For four days prior to this illness, he had daily paroxysms of fever, which came on about noon. At 11 p. m., February 11, he had a hard chill which lasted for two hours. The fever rose quite high and was attended with vomiting. The patient became delirious, and from 2 a. m. to 9 a. m. he was comatose, his wife being unable to arouse him by calling, shaking or pinching. The coma was attended by stertorous breathing. I saw the patient about 10 a. m. He was complaining of headache and a slight burning sensation about his knees. Over each knee were large bullæ, extending from a few centimeters above the upper border of the patella to a few below the tubercle of the tibia. There were also two of much smaller size about the middle of the leg anteriorly. On the very black skin of this patient, these bullæ looked like burns of the second degree. The patient, in his delirium, had run across the room, taking his seat in a chair which sat before an open fire-place, in which were a few coals of fire. His wife states positively that he did not fall into the fire. His clothing was not burned. The temperature was 102 F., pulse 88, respiration about normal. The tongue was large and flabby, covered with a white coat; the mucous membranes were of fairly good color; the bowels were constipated, the spleen was enlarged, being palpable at the costal margin. The blood showed numerous estivo-autumnal parasites, all apparently of the same stage of development—about one-fourth the size of the red blood corpuscle. The urine did not show any albumin nor sugar.

Under vigorous antimalarial treatment for seventy-two hours, the fever subsided and did not return. The bullæ were pricked and a rather dark serum exuded. The places were dressed with gauze greased with vaselin. The patient was told to report if his legs gave him any trouble. I was called to see him again after about four weeks. I found gangrenous patches over areas referred to above, involving the skin and subcutaneous tissue. The ligamentum patella was exposed in the left leg. There was a gangrenous odor and the tissue was sloughing. The temperature was 99 F. The blood showed a few endoglobular, ring-form parasites and several estivo-autumnal gametes; red blood corpuscles, 4,028,000 per cm.; leucocytes, 6400. The differential count showed polymorphonuclears, 68.5 per cent.; small mononuclears, 23 per cent.; large mononuclears, 8 per cent.; eosinophiles, .5 per cent. Under the influence of quinin and antiseptic poultices, the gangrenous tissue sloughed away, leaving quite large ulcers which I show in the accompanying photographs.

The object in thus presenting this case in detail is to discuss some of the phases of malaria suggested by

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it. which are exceedingly interesting to practitioners in malarial regions. The first phase which I desire to call attention to is

PERNICIOUSNESS IN MALARIA.

The clinical forms of pernicious malaria have been recognized since Torti's classic description of the periodic pernicious fevers, in 1743. These do not differ materially from the graphic description by Dr. Joseph Jones, of New Orleans, of these fevers occurring in the southern portion of the United States.

Marchiafava and Bignami state that "since the time when the parasites of the tertian and quartan were first known, there is no instance on record of a malignant infection caused by them, and no autopsy has ever been made in connection with a spring tertian or quartan." However, in this country, a few cases showing pernicious symptoms in infections with the benign parasites have been reported. They must, therefore, be regarded as exceptions to the general law that "the malignant infections are caused by the summer-autumn varieties of the malarial parasites." My experience has been that the large majority of cases of malarial fevers occurring in the Mississippi Valley are estivo-autumnal infections.

Estivo-autumnal Infection, with Multiple Spontaneous Gangrene

Estivo-autumnal Infection, with Multiple Spontaneous Gangrene.

It is a well-known fact that in these infections the estivo-autumnal parasites are found in exceedingly large numbers. If this is not shown in the blood from the peripheral circulation during life, the autopsy usually shows them markedly increased in the viscera. It also appears that there are usually two predominating broods of parasites, sometimes more, in the blood of patients with pernicious fever. But Marchiafava and Bignami report cases in which the viscera, as well as the peripheral circulation, show a very small number of parasites. Dr. Ewing emphasizes this point in his report on the cases of malaria at Montauk Point. The cases of pernicious fever where only one brood of the parasites is present, as seems to be the condition in the case I report, are not infrequent. So it is evident that we must look for the cause of malignancy in another direction than merely in the large quantity of parasites.

These causes may be found in what has been termed the biologic characteristics of the estivo-autumnal parasites. The first of these is their capacity for rapid propagation. This is seen in the great number of young forms which are seen in the blood a few hours after the beginning of the paroxysm. It is another characteristic of these parasites to disappear from the peripheral circulation to complete their cycle of development in other vascular areas.

The pathologic anatomy of these fevers teaches us that there is a decided tendency for the adult forms and forms of fission to accumulate in the capillary network of certain organs. e. g., the spleen, where the circulation is physiologically slow; in the brain, where the lumens of the vessels is small; and in the capillaries of the gastro-intestinal tract. Indeed, it has been proposed to explain the cerebral and choleriform types of these fevers by the mechanical obstruction thus produced in the respective areas. Frerichs thought this obstruction in the cerebral capillaries was produced by thromboses of malarial pigment. Laveran recognized the parasitic nature of these thromboses. Marchiafava and Bignami state: "Only exceptionally do we find in the cerebral vessels free pigment (thromboses of pigment), or masses of melaniferous leucocytes (thromboses of phagocytes), or rarely also free adult parasitic forms or accumulations of free spores (parasitic thrombi in the proper sense of the term)." But they attribute the cerebral hyperemia to the accumulation, in the cerebral vessels, of red blood corpuscles loaded with amebæ, this stagnation being brought about by the degenerative changes wrought by the parasites in the red blood corpuscles, which impair their capacity for free circulation.

No doubt we should attribute great weight to the mechanical theory in explanation of these symptoms. Another factor, however, must be taken into account in these as in other forms of pernicious malaria, viz., the virulence of these parasites.

Many attempts have been made to demonstrate a malarial toxin, chief among which are the experiments of Professor Celli. The injection of 25 c. c. of serum, from a case of comatose malaria, into a little child, failed to show any toxic effect. The experiment to find the toxin shut up in the red blood corpuscles proved

equally futile. Still, almost every one now speaks of the toxin or toxins set free at the time of sporulation of the parasites. There is good evidence for believing that a malarial toxin exists, although it can not be demonstrated, so it is probably this property of the estivo-autumnal parasites more than any other which accounts for malignancy in malaria.

It is known that many uninfected corpuscles give up their hemoglobin. The presence of brassy corpuscles, *the ottonati,* shows the toxic effect of the parasite in its endoglobular phase.

Another proof of the great virulence of these parasites is the occurrence of hemoglobinuria in these infections. It has been stated by a distinguished authority that hemoglobinuria is not malaria, because he has been unable to observe the correspondence between the amount of hemoglobinuria and the number of parasites in malarial fever; and in his series there was no case in which hemoglobinuria was present with a large number of parasites, whereas in many cases with a large number of parasites no hemoglobinuria was present. As against this view it is interesting to note the findings of the Malaria Commission to the Royal Society. It tabulated a series of 28 cases, including 17 reported by Koch, 3 by Ollwig, and 5 studied by the members themselves, in British Central Africa; and show that of these, 75 per cent. showed malarial infection. It also points out that of 21 postmortems in cases of blackwater fever, 90 per cent. showed malarial infection. In these cases, we most infrequently are unable to find the parasite in the peripheral circulation during the attack. I have seen them in only two of nine cases in which the blood was studied. But the blood affords other evidence of malarial infection than the presence of parasites in it, viz., the presence of pigmented leucocytes, and the characteristic leucocyte variation of malarial infection. There were pigmented leucocytes in all the cases studied by me. This pigmentation was seen especially in the large mononuclears. It has been stated that there is a true leucocytosis in these cases, i. e., an absolute increase in the white cells and a relative increase of the polymorphonuclears. I do not believe this statement is correct. Numerous observers have noted that there is often a large increase of white cells in pernicious fevers. Dr. Thayer reports one in which there was an enormous increase, but the differential count showed the characteristic variation of malaria—an increase of the large mononuclears at the expense of the polymorphonuclears. The malaria commission appointed by the Royal Society has made more extensive investigation of the leucocytes in the estivo-autumnal infections than I have been able to find elsewhere. As a rule, a slight leucopenia was found. During the intermission or the remission, when marked, there was a relative increase of the large mononuclears; but during the paroxysm of fever, the polymorphonuclears were not only reduced, but sometimes increased. The large mononuclears were increased at the expense of the polymorphonuclears when the large forms of the parasites were in the blood, and the polymorphonuclears were not decreased when the small forms were present. I have been able to confirm these observations in several counts recently made. In all 5 cases studied by them they found an absolute increase in the white cells, and the leucocytic variation characteristic of malaria. I made differential counts in 2 of the 9 cases referred to by me. One showed P. M. N., 64 per cent.; large L. M., 20 per cent.; S. M., 16 per cent. The blood was obtained during the decline of the fever, near the first intermission. The same patient showed P. M. N., 75 per cent.; L. M., 15 per cent.; S. M., 10 per cent. a few hours before death. Another case showed P. M. N., 64 per cent.; L. M., 19 per cent.; S. M., 16 per cent.; E., 1 per cent. So if pigmentation and leucocytic variations are evidences of malarial infection, where the parasites are few or absent in the peripheral circulation, hemoglobinuria must be malaria, and, being malaria, is a most striking evidence of the extreme virulence of the estivo-autumnal parasites.

Phenomena occurring in these infections, after the disappearance of the parasites, which have been termed post-malarial, are also evidence of the toxin theory. Kelch and Kiener, Mannaberg, and others, have noted the decrease in the percentage of hemoglobin after the disappearance of parasites. Dr. Ewing reports several cases of fatal anemia in his Montauk series, after the disappearance of the parasites. Dr. Thayer has reported a very interesting case of comatose fever, which he regards as post-malarial auto-intoxication. Marchiafava and Bignami state that, "in addition to the post-malarial fevers, there are individual cases of a post-malarial morbid condition, which must be put by the side of those which come after other infectious diseases (typhoid, pneumonia, scarlet fever, etc.)."

Another phase of malaria which the case reported suggests is

IMMUNITY

in malaria as it relates to the negro. We not infrequently see it stated that the negro is relatively immune from malarial infection, and sometimes that he is absolutely so. These statements are not in accord with my experience of eight years with the negro in the southern Mississippi Valley. Maurel, from his studies on this subject, concludes that no human race is immune from malaria, not even the black race.

On the plantation where I reside there were 24 whites last year. Of this number, 41 per cent. were infected with malaria. Of this number, however, 5 did not have malaria, and were away from home during the greater part of the malarial season. Excluding these, the malarial morbidity would be about 53 per cent. among the whites. There were 184 blacks; of these 61 per cent. were infected.

I have tabulated 20 cases of pernicious fever which I have seen since June, 1900, showing:

No.	Age.	Race.	Term of Residence. Days.	Month.	Type.	Result.
1	34	White.	34	June. . . .	Hemoglobinuria	Recovery.
2	4	Black.	4	June. . . .	Cardialgic	Death.
3	7	Black.	7	July.	Comatose.	Death.
4	60	Black	20	July. . . .	Hemorrhagic, Melaena. .	Death.
5	15	Black.	2	July. . . .	Bilious continuous	Death.
6	3	Black	3	August. . .	Cerebral, convulsions . .	Recovery.
7	35	Black.	12	August. . .	Hemoglobinuria.	Recovery.
8	55	White.	55	August. . .	Hemoglobinuria.	Recovery.
9	4	Black.	3	August. . .	Comatose.	Recovery.
10	11	Black.	5	August. . .	Comatose.	Recovery.
11	5	Black.	5	August. . .	Cerebral, convulsions . .	Recovery.
12	55	White.	55	August. . .	Cerebral, delirium. . . .	Recovery.
13	10	Black.	2	September	Comatose.	Recovery.
14	10	White.	1	September	Comatose.	Recovery.
15	18	White.	18	September	Hemoglobinuria	Recovery.
16	10	Black.	10	September	Comatose.	Recovery.
17	38	White.	10	September	Hemoglobinuria	Death.
18	30	White.	12	November.	Hemoglobinuria	Death.
19	60	Black.	12	February..	Comatose.	Recovery.
20	5	White.	60	February..	Comatose.	Recovery.

Of this number it will be seen that 12, or 60 per cent., were negroes. The mortality among negroes was 33 1/3 per cent.; among whites, 25 per cent. Indeed, I have seen the comatose, convulsive, cardialgic, gastric, choleriform, hemorrhagic and hemoglobinuric types occur in negroes, and in some death resulted.

The next phase which this case suggests is

GANGRENE IN MALARIA.

Several cases have been reported by Petit and Verneuil, in reviewing the occurrence of gangrene in connection with Raynaud's disease. These and others have been referred to by Barlow and Monroe. Osler reported a case of multiple spontaneous gangrene occurring in an estivo-autumnal infection, in the *Bulletin of the Johns Hopkins Hospital,* in February, 1900. He classifies three groups of gangrene: 1. In connection with Raynaud's disease. 2. Multiple spontaneous gangrene, in association with the acute infections, like measles, typhoid fever, typhus fever, scarlet fever, diphtheria, and malaria. 3. Multiple spontaneous gangrene of the limbs in young and middle-aged people without any obvious cause.

The case I report is one of multiple gangrene in an estivo-autumnal infection. I saw another case of spontaneous gangrene last year, which, from the clinical history, I regard as one in association with malaria. I regret very much that I could not get a blood-smear for examination, being without cover-glasses and slides at the time.

On March 27, 1900, the father applied to me for medicine for his child, C. S., a mulatto girl 4 years of age. He said that she had been having chills and fever for some time and was swollen about the face, hands, and feet. I prescribed iron, quinin and bitartrate of potash, under the influence of which, he said, the swelling disappeared. On May 16 I was called to see the child, and found her fairly well nourished. She had quite a high fever, with very rapid pulse and respiration. There was no edema and no eruption on the skin. The mucous membranes were anemic. The lungs were negative. There was no enlargement of the heart, and no cardiac murmurs. There was vomiting. The bowels were constipated; the spleen was enlarged, being palpable below the costal margin. The urine showed no albumin nor sugar. The child was put upon vigorous antimalarial treatment. On May 20, four days after my visit, the father reported that her fever had subsided and she seemed much better, but one foot was cold and apparently dead. The next day I visited the patient and found the right leg very cold as high as the knee, the toes in a state of dry gangrene, the dorsum of the foot black, with a few purpuric spots on the leg. The left leg appeared normal. There was no fever. A careful examination showed no endocarditis; there was no history of rheumatism. There were some pains about the knee on moving the leg. Another careful examination of the urine failed to show any albumin or sugar. I ordered a nourishing diet and tonic treatment, and advised the father to inform me when the line of demarcation formed. I did not hear any more from the patient until about two weeks afterward, when I happened to be passing the house, and asked how the child was getting along. The reply was, "Dat foot done come off." I went into the cabin and found the child sitting on a pallet on the floor, in very good spirits. On removing an old apron in which the leg was wrapped, I saw that spontaneous amputation had occurred at about the upper third of the leg.

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DISCUSSION.

DR. E. H. MARTIN, Clarksdale, Miss.—I have not many criticisms to make, but I do wish to draw attention to a distinction between the forms of pernicious malaria spoken of; for instance, hemoglobinuria and the comatose forms are all classed as pernicious malaria. Hemoglobinuria may be pernicious, but never in the sense we regard the other. Hemoglobinuria is malignant in that the germs present cause an absolute destruction of the blood cells. The other form is pernicious simply from an overdose of the toxin of malaria. In other words, one is pernicious from an overdose of the toxin and the other from the malignancy of the germs causing a destruction of the blood cells. In the negro we see but few cases of pernicious malaria in proportion to the total number of cases. In adults we see but few cases of pernicious malaria. In small children, especially in the small white children, we have a great many cases; it is quite an uncommon thing for a white family in the swamp lands of Mississippi to raise more than two out of five children, on account of the pernicious malaria, and the reason, I think, is evident; the blood of a child is very rich in the pabulum which nourishes the malarial germs; the vital resistance is low, and comparative immunity unattained. A vast number of the malarial germs develop, producing toxin, an overproduction of which kills the patient. I do not think that the mechanical theory can hold good; there is no reason why a few germs, and broken-down malarial organisms, should stop up the capillaries of the brain of a white child and not do the same for a white adult or negro child; yet it is a fact that these children have the "congestive" type almost exclusively. This is the idea that we get in speaking of pernicious malarial fever, that the toxins develop rapidly and in large quantity, and are administered to the patient in lethal doses.

Immunity in the negro is real, but only relative. It is a well-known fact that the number of white people that are affected with malarial troubles is less in proportion to the number of negroes affected than it was supposed to be; this is on account of the use by the whites of gauze doors, mosquito bars, the administration of quinin, etc. The class of "poor whites" who live as the negroes do are nearly all sufferers from acute or chronic malaria.

There is some hemoglobinuria among the negroes; but, where there were 400 negroes and 100 whites, there were 30 cases of hemoglobinuria among the whites and but 1 among the negroes. So, the negro has a relative immunity. Again, this relative immunity may be lessened by residence in non-malarial regions; a negro returning from a residence in New York, for instance, has lost it to a certain extent, but, after he has been in a malarial district for a time this relative immunity is regained. The negro is not fully immune, but is more nearly so than the white man; and the white man who has resided long in a malarious locality has a greater partial immunity than a newcomer.

DR. WILLIAM BRITT BURNS, Memphis, Tenn.—In referring to the immunity in the negro, the word relative, as mentioned by Dr. Martin, is a good one to employ. The negro is not immune to malaria, but he is relatively immune. The negro has malaria in mild form; it is true he has malaria in malignant forms, yet they respond to treatment quickly, much more so than the white people. I have seen several cases of comatose malaria in the black negro, and I have seen them get well; they all get well. I have never seen a case of comatose malaria in the negro terminate fatally, but I have seen many cases among the whites, especially in children. I have no doubt but what the accumulation of the malarial toxins in children is very rapid, and it is a common saying in the delta of the Mississippi valley, in Arkansas and Louisiana, that we must not allow a child to have a second or a third chill; it is the commonest thing to see, in a very large percentage of the cases, a child with congestion or congestive chill who dies. I have seen very few get well in infancy after the paroxysm of congestion came on. I have seen negroes, comatose for hours, get well.

DR. D. M. HALL, Memphis, Tenn.—I do not live in as malarial a district as those who have preceded me, and therefore I have not seen as many cases of malaria, especially of the malignant type. My experience, however, leads me to believe that the negro is relatively immune. I have seen a great many more cases of malaria among white people than among negroes.

I think that if you take an equal number of whites and negroes, under similar conditions of exposure, etc., a greater number of whites will have malaria than the negroes. I do not know why this is so. We have in the South negroes living in places where the mosquitoes are in droves and where the conditions are good for the production of the disease, and they live there with very little infection; yet, I am sure the white people could not live there without being infected. In one city in the South there is a little creek which runs through the town and a great deal of sewage is thrown into it despite the efforts of the board of health. This is a great breeding-place for mosquitoes and they are there in swarms; near this creek seems to be a favorite place for the negroes; they live there on its banks, in cabins, and they seem to be in good health. Yet the white people who live near there are greatly infected with malaria. Therefore, I do not think the negro is immune, only relatively so. I think he can be overcome by malaria, but this depends upon the quantity of the poison introduced into the system. It requires more of the poison, in a more virulent form, to overcome the negroes than it does the white people.

DR. DELANCEY ROCHESTER, Buffalo, N. Y.—I presume it is well known that the mosquito is one of the sources of malaria; I should like to ask the gentlemen present if they recognize any other mode of entrance of the malarial parasite into the body besides the mosquito.

DR. W. G. HARRISON, Talladega, Ala.—The negro is relatively immune to most every disease, except lung troubles. I remember, when a student of medicine, that Dr. Westmoreland, in his lecture, stated that the negro was greatly immune to most of the bad and alarming features of tertiary syphilis. I have watched closely since, and I am sure that what he said was true. I think the negro has some relative immunity to all diseases except those of the lungs. They die from pneumonia and tuberculosis most readily. I saw a family in February where five died from pneumonia in one week; in the same community I had five or six cases among the white men and none died; all had the same kind of medical attention, the same physician, the same nursing, etc. Negroes die rapidly from pulmonary diseases of every kind.

Scientific medicine is being introduced into the Southern malarial swamps. The physicians in Louisiana, Alabama, Georgia, etc., are rapidly learning the use of certain apparatus for the better diagnosis and treatment of disease. It is now necessary that any man who practices in the South should equip himself with a microscope and all other instruments for clinical diagnosis. I have seen many cases, some of them among the negroes, who were taken sick with some inflammatory trouble and they seemed in a fair way to recover, when there was an unexplained rise in the temperature; the microscope revealed the malarial parasite; without it the rise in the temperature could not have been explained. Recently, within the last six weeks, a little girl of 2 years was brought to the hospital with cholera infantum; she got along slowly. Under the use of the saline solution she gradually got better, but, after one week, without any apparent reason at all, there occurred an elevation of temperature. I expected a return of the vomiting and watery passages, but they did not appear. After thirty-six hours an examination of the blood revealed some of the organisms of malaria. Under the proper administration of quinin the patient promptly got well. Regarding the statement that negroes are more susceptible to all diseases, I can only say my experience is very different. They easily contract smallpox, and most of them have latent syphilis, but I am sure the race possesses a distinct relative immunity against all the fevers, stomach and intestinal derangements, rheumatism, gout and many other maladies.

DR. VICTOR C. VAUGHAN, Ann Arbor, Mich.—I saw many cases of malaria in Cuba in 1898, and a large number of these were of the comatose variety. While I can not give any exact figures, I am under the impression that the comatose form of malaria, as we saw it in Santiago, was relatively quite as common among the negro soldiers as among the whites. Some time ago I went through the army records investigating this matter, and while I can not give exact figures, I am confident that the general statement that I have just made is correct. The last speaker surprised me when he stated that the negro is immune to many diseases to which the white man is susceptible. The question of relative immunity between races is an important one, and I do not believe that definite conclusions should be stated until we are sure of the data on which they are founded. Only a few years ago it was believed that the negro was quite immune to yellow fever, but later epidemics have shown that this is not true. When yellow fever prevailed in our army in Santiago in 1898, two companies of the 24th Infantry, composed of negroes, were detailed as nurses on account of their supposed immunity to the disease. Practically all of these negroes became infected, and the mortality was quite as great as it was among the whites. It should be stated that this regiment had long been stationed in the western part of the United States, and possibly the negroes composing it had lost any racial immunity that they may have originally possessed. I have always been of the opinion that the white man is hardier and as a rule less susceptible to the infectious diseases than the negro, and I am surprised to hear it stated here that the negro is largely immune to most of the diseases to which we are susceptible. In this country tuberculosis and pneumonia are the most fatal of the infectious diseases, and certainly the negro is quite as susceptible to either of these as the white men, and the mortality is greater among the blacks. I am also convinced from extended observation that the negro succumbs to typhoid fever quite as readily as does the white man.

DR. G. W. GOINS, Breckenridge, Mo.—I wish simply to ask a question whether, in the practice of any present, many cases with a malarial symptomatology have occurred which simulated more or less typhoid fever and which did not yield to the administration of quinin.

DR. LOUIS SCHWAR, Cincinnati, Ohio—Several of the gentlemen have spoken of a malarial imprint upon other diseases. This has been noticed in the progress of many of the diseases, particularly such that usually run an uninterrupted course. In the Millcreek valley, in which I live, many of the acute infections are observed to be disturbed in their behavior by malaria, and this belief is strengthened by the fact that quinin generally corrects the interrupted course. One reason why, in the treatment of the negro, better results are obtained by remedial agents, is perhaps because doses are more heroically given. This is particularly true where quinin is indicated for malarial affections. The statement that the negro enjoys an immunity from syphilis seems singular and can only be explained by invoking the belief that his immunity exists because he is born with the taint. The frequency with which unlooked-for fatal results occur in the negro is a matter of common observation on the part of those who have much to do with him. Sometimes, with no apparent reason for the fatality, death occurs, and it has been assumed by many that he loses his nerve just at the time he most needs it. It is known that the negro is very impressionable; this is best demonstrated by his conduct at religious exercises where in his excitement he is led to exhibit his fear in the most peculiar manner. It may be that a sense of impending danger lowers his resisting power and explains why he dies when there is no reason for it. Dr. W. S. Christopher, of Chicago, once applied the term "negroitis" to this manifestation.

DR. JOSEPH BRAYSHAW, Berlin, Ill.—In Central Illinois we have a few cases of malaria that so much resemble typhoid fever that a diagnosis can only be made by means of the microscope; but we have a large number of typhoid fever cases that so clearly resemble malaria that were it not for the Widal reaction and the absence of the malarial parasite a diagnosis would be impossible. We frequently have typhoid fever without pea-soup stools, without rose spots, and without very much abdominal tenderness, while we frequently have abdominal tenderness to a marked degree in malaria. The typhoid condition and typhoid tongue are frequent in our cases of malaria.

DR. T. B. FUTCHER, Baltimore, Md.—I should like to emphasize one important complication in malaria which Dr.

McElroy has already referred to in his paper, i. e., the occurrence of multiple gangrene in malaria. I was fortunate in having had an opportunity of seeing the case of gangrene of this nature which was under the care of Dr. Osler. The patient was a man, 23 years old, who was admitted to the surgical side of the Johns Hopkins Hospital, with dry gangrene over the dorsum of both feet, the heel of the right foot, and symmetrical patches over the fingers of both hands. There were, also, one or two large patches over the gluteal regions, and two small areas over the occiput. The case was at first a puzzling one from an etiological standpoint. There was slight elevation of temperature, and this, with the existence of an enlarged spleen, led to the examination of a specimen of fresh blood, which revealed numerous typical malarial crescents. This suggested the possible relationship between the malarial infection and the gangrene. Accordingly, the patient was transferred to the medical side and immediately placed upon anti-malarial treatment, quinin being administered in large doses. The patches of gangrene were treated locally. Improvement began at once, and the patient soon recovered from the local lesions. This was the first case of malarial gangrene that we have had at the Johns Hopkins Hospital out of a total of over 2000 cases, and it is undoubtedly an extremely rare complication. The case illustrated the importance, in cases in which the etiology is obscure, of a careful examination of the blood.

I should like to add that my impression in regard to the relative frequency of malaria in the two races in Baltimore, without having definite figures at hand, is that the negro race is practically as frequently affected as the white.

DR. W. D. HAINES, Cincinnati, Ohio—We have all seen delirium tremens follow in the wake of an accident, fracture, etc.; in the so-called moderate drinkers, on the other hand, we have seen malarial fever manifest its influence immediately after some surgical procedure. This would seemingly indicate that the prerequisite principle in either instance lay dormant until some exciting cause demanding extra attention on the part of Nature becomes operative. This is somewhat at variance with the usually accepted theory of disease, viz., that the host must prepare for the reception of the guest. We are exposed daily to the infectious principles of diphtheria, typhoid fever, tuberculosis, etc., and still we do not contract these maladies, forsooth the soil is sterile. On the other hand, how frequently we observe patients with lowered vitality or injury become an easy prey to these infections.

The statement made by one of the speakers, Dr. Harrison, astonished me not a little. He said: "The negro enjoys immunity from syphilis." It seems to me as I now recall personal experience in the treatment of this race that I have seen more cases of active syphilis in the negro than all other races combined. I never ask a negro *whether* he has had syphilis, but *when* he had it.

MEDICAL SHOCK.*

O. T. OSBORNE, M.A., M.D.
NEW HAVEN, CONN.

Before discussing what I interpret to be a condition of medical shock, it may be well to say a few words concerning the justification of ever rendering a certificate of death from "heart failure." Far be it from my purpose to excuse, justify, or encourage the use of this term to aid ignorant certifiers of undiagnosed deaths, or to give a mystic covering to illegitimate deaths, whether due to actual malpractice, or to the careless use of active drugs.

It may be said that the certificate of death from medical shock or heart failure is unjustifiable, because, if we seek carefully enough, we will find a cause for the failing heart, such as myocarditis, fatty degeneration, an endarteritis or atheroma of the coronary arteries, etc., which causes, however, can many times be diagnosed only on the autopsy table.

Neurasthenia, which is a condition and not an entity, is recognized as a legitimate cause of death, but the pathology of this condition is more intangible than the condition of heart failure.

I do not wish to advocate the use of the term "medical shock" for conditions of failing heart, due to distinct pathologic conditions, or due to the gradual break-up or overpowering of the system by very acute or prolonged processes, but I think the term justifiable, when a badly acting and gradually weakening heart is the most urgent cause for anxiety, and its weakness is out of all proportion to the pathologic condition or symptoms present.

I believe it to be a fact that the hearts of our patients cause us more and more anxiety every year. If we doubt this statement, we have but to trace the treatment of acute conditions from the period of bleeding, calomel, tartar emetic, or other depletions, gradually down to the present time to find that first there was a cessation of depletions; next, the avoidance of nauseating doses of anything, denoting a greater care of the stomach; next, forced nutrition; then the general disuse of such drugs as aconite and veratrum viride; next alcoholic stimulation, and now we even note the loss of vasomotor pressure from alcohol and use strychnin in its place. This all means that the hearts of to-day do not withstand fevers or other systemic upsets as they formerly did.

To be specific, we are as justified in using the term "medical shock" as we are in using the term "surgical shock," and that the symptoms of heart failure which develop so unexpectedly in acute cases otherwise progressing satisfactorily, are due to this condition of shock. We all know the symptoms, viz., a more or less rapid heart, but with the least movement or excitement made very rapid; a soft, irregular, perhaps dicrotic or intermittent pulse; incomplete inspirations without much actual dyspnea, interspersed with frequent sighs, and the subjective symptom of precordial oppression. The temperature is generally low, the flesh cool and clammy, and if quick relief is not obtained, death will soon take place, caused by heart failure or medical shock.

The pathology of surgical shock is believed to be a paralysis of the vasomotor system, causing primarily a bleeding of the body into the large abdominal vessels, splanchnic paralysis, and secondarily great loss of heat from the dilated surface vessels.

I believe that medical shock is just as certainly a vasomotor paralysis, except, perhaps, in severe acute malignant affections where there may be a great destruction of red blood corpuscles. As a consequence of this paralysis, the major part of the blood is in the abdominal veins. The blood flows slowly into the dilated and, therefore, non-elastic arterioles; hence, slowly in the capillaries, and returning slowly in the veins, but imperfectly fills the heart cavities. The heart, not only from imperfect filling, but also from impaired nutrition, contracts irregularly, incompletely, and arrhythmically. The aorta has not the pressure ahead or the forcible quota of blood from behind, and consequently does not give enough elastic rebound to force blood properly into the coronary arteries, and the heart muscle is improperly nourished. By the lowered pressure, and the normal blood pressure is so vital, all the functions of the body begin to fail, all digestive processes are imperfect, and undoubtedly normal oxygenation is impaired, molecular death begins to take place, at least almost unaccountably

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee: Drs. Frank Billings, George Dock and J. M. Anders.

gradual failure of body and mind occurs, till death closes the scene.

Surgical shock is more frequently caused by injuries to certain areas of the body than to others, such as the head, neck, splanchnic region or testicles. Many cases of operative shock are undoubtedly due to the intense pain from severed nerves, without loss of blood.

Returning again to medical shock, we find that severe, acute nerve pain will, if continued, give a lowered vasomotor tension, and if too long continued or too severe, vasomotor paralysis or shock, perfectly similar to that due to profound injuries of these nerves, or surgical shock. The nerves most likely to cause such lowered blood pressure from pain are exactly those which, if injured or operated on, are most liable to cause surgical shock, viz., in the region of the heart, solar plexus, the neck, the head, and the testicles.

We often see this depressed heart and softened pulse from precordial pain, or from a genuine migraine, or biliary and renal colic. The vasomotor depression is quickly shown in these cases, but in any subacute or chronic nerve pain, sooner or later, this condition, possibly mildly evident, supervenes. Even in hysterics and neurasthenics, imaginary pain can and does cause the same depression; in fact, a true neurasthenic is probably not much else than a patient in a chronic state of diminished blood pressure and semiparalysis of the vasomotor system.

Chronic organic diseases without pain do not cause symptoms of shock until profound anemia occurs. In acute fevers a successful issue is generally assured if the heart, and that really means the vasomotor system, can withstand the strain. The strain means the intensity and persistency of high temperature, the amount absorbed of the suppurative or putrefactive products of the pathologic process, plus the absorption of fermentative products due to intestinal stasis, and the central depressing influence of the toxins produced by the specific germ. If we can sustain the vital powers, and what does this mean other than the vasomotor tone, until the elimination of such poisonous products exceeds the absorption, our patient will get well, even if we have to fight through a tedious convalescence, showing the amount of muscle and nerve strain through which the patient has passed. In other words, our whole aim in acute feverish processes should be to make the elimination at least equal to the production of these decomposition and fermentative products, and to prevent the absorption of these products if possible. This means, specifically, to cause all of the emunctories to do good and proper work, or if one is impaired, to increase the action of another, and to keep as clean as possible every localized suppurating or inflammatory process that may be going on. The good results of such treatment are markedly evidenced in typhoid fever. By laxatives and intestinal antiseptics we reduce the temperature, clean the ulcerating surfaces and prevent fermentation from giving more toxins, and from producing that most troublesome condition of tympanites, with its liability to cause hemorrhage and perforation. A considerable portion of the persistently high temperature and bad pulse of typhoid fever is due to the added and often neglected factor of bowel-infection.

In all diseases or conditions where there is a piling-up in the blood of absorbed poisons, be they from typhoid or dysenteric ulcers, pus collections, malarial plasmodia, or hemoglobin debris, cancerous disintegration, or catarrhal edematous mucous membranes, which are such fine culture-grounds for all germs, any treatment that hastens the evacuation of the excreted bile, impregnated as it is with toxins, made temporarily inert by the good offices of the liver mechanism, will prevent systemic and nervous poisoning and ultimately vasomotor disturbance and medical shock.

Hence, in any disease, to forestall the condition which I have termed "medical shock" we should take every means to prevent the absorption of secondary toxins, or in other words, we should endeavor to prevent double infection. We should carefully promote nutrition, not overloading the stomach, stimulate the heart either with alcohol, strychnin, coffee or camphor, as indicated, and stop too acute, or too long continued, subacute pain. Coal-tar antipyretics and analgesics should be used with the greatest care. Of course any hemorrhage should be treated as the surgery of the part decides, and any subnormal temperature by every known method to keep up the normal heat of the body.

If medical shock occurs, we must treat it on the same general principles as laid down for the treatment of surgical shock. All cardiac and vasomotor medication should be administered hypodermically, as the stomach will not absorb in this condition of shock, and the tolerance of enormous doses of active drugs, as digitalis, given by the stomach for the shock of delirium tremens, is due to the very slow or non-absorption of it. Small quantities of hot liquids taken into the stomach can but do good by their warmth.

I have purposely but briefly mentioned the shock due to acute malignant infection, which may be largely profound acute anemia due to destruction of the red blood corpuscles. I have wished to emphasize the frequency and the pathology, as I interpret it, of the attacks of heart failure as we see it in our acute cases. Many deaths attributed to the acute disease present are really due to this condition of medical shock or heart failure. We all frequently have cause to combat, sometimes successfully, sometimes unsuccessfully, these attacks of medical shock. Whether we term this "medical shock," or "heart failure," we know that can we hold this heart and vasomotor system for a short time longer, our patient will recover from the disease which has attacked him.

DISCUSSION.

DR. C. W. LILLIE, East St. Louis, Ill.—It has long been a question whether the term "heart failure" is a proper one to use at any time, and especially as it is condemned by those who are looking for accurate statistics regarding the causes of death. It seems to me that the term, as used in the paper, would seem to cover the conditions produced by a number of influences exerted upon the patient by disease, i. e., by combined influences rather than by shock. The term shock I believe should be restricted to those cases in which there are influences of a direct character applied in such a way as to immediately overcome the vital forces. These influences can be overcome, or prevented, by the use of such general tonics as are indicated, and especially by strychnin. It does not seem to me that the term "medical shock" would be a proper one to apply.

DR. JAMES J. WALSH, New York City—The term "medical shock" seems to deserve a place in the discussion of certain difficult fatal cases, the etiology of which is as yet unsettled. For a time the term heart failure was employed, but owing to the abuse of it, has fallen into disrepute. There are, however, undoubtedly cases in which owing to the development of some nervous condition the heart stops beating though no lesion can be found postmortem. Most of us have experienced certain cases which, especially those beyond middle life, when attacked by some acute gastric or intestinal condition, are liable to paroxysms of heart disturbance, and may prove fatal. Sometimes death is almost instantaneous and would

seem to be due to the shock of pain. It is as if irritation of the digestive ends of the vagus led to irritative reflex, inhibitory impulses that brought the heart to a standstill. This state of affairs reminds one of nothing so much as surgical shock. What the underlying basis for surgical shock is we do not know. It seems an excellent idea, however, to have the analogous term, "medical shock," to apply to certain non-surgical cases, because this will stimulate the investigation of both conditions, so as to solve the important problems they involve.

DR. C. A. KELSEY, Minneapolis, Minn.—By whatever term we call it, surgical shock, heart failure, or any other term, we all experience the same anxiety when we are confronted with the condition. During the reading of this excellent paper one thought came to me which I would like to discuss here. In diseased conditions where heart failure is liable to occur, is it the wisest plan to fortify the patient against its occurrence, or shall we reserve our agents until the critical moment comes and they are demanded? I have sometimes thought that we make a mistake by crowding the hypodermic injections of strychnin, or other powerful heart tonics, in cases where it does not seem to be positively indicated. I have in mind a case of diphtheria in a child occurring not long since, in which the consultant advised beginning and continuing the use of heart stimulants by the hypodermic method in order to anticipate heart failure. That plan was pursued, the nurses were provided with the hypodermic syringes, and they continued to use the injections. But, when the critical point did come and the heart failed, the heart then refused to respond to stimulation and the patient died. The point I want to raise is this: Is there not a possibility of making a mistake in commencing the heart stimulants before they are positively indicated and thus get the system so accustomed to the stimulants that the heart fails to respond at the critical moment? A man in a race does not use the spur at the beginning, but at the proper moment; if he did use it at the beginning the horse would fail to respond to it when the proper time came.

DR. GEORGE W. WEBSTER, Chicago—Whether we employ the term heart failure, or weak heart, or surgical shock, or medical shock, we should, all of us, be ready, at all times, to recognize the condition. I believe there is no one point on which there is less clearness of conception than in regard to this matter of failure of weak heart, and the conditions which bring about a weak heart. I know that there are many physicians who, when they examine the heart with a stethoscope for the first time, and find no murmur and no apparent intrinsic cause for the heart giving out, pronounce it sound. We should remember that a weak heart may be brought about by overwork due to both intrinsic and extrinsic causes; it may be due to valvular lesion; or the right side may be overworked from causes in the pulmonary circulation, and the like; or the left heart may be overworked from systemic conditions, as a general arterial sclerosis; the heart may fail from toxemia due to many causes, such as alcoholism, gout, syphilis, or from the toxins produced by various acute infections. There are many of these toxins which influence the heart muscle directly, and both the intrinsic and extrinsic nervous mechanism of the heart. Again, the heart may fail from failure of nutrition, which may be due to disease of the coronary arteries, primary or secondary anemias, or reflex causes.

I remember an experience that I had as a medical student about twenty years ago. We had a rabbit upon which we were going to experiment, and that animal was actually scared to death. The conditions found were these: The heart was found to be absolutely bloodless and the abdominal veins were enormously distended with blood; in other words, the animal bled to death into his own veins, the veins presided over by the splanchnic nerves. There was a failure of the heart from the nervous influence. Mental emotion may of itself be sufficient to cause a dilatation in the splanchnic area, so lowering the arterial pressure, causing the heart to fail. If we use the term heart failure we should remember that it is merely a convenience for classifying, not in any definite way, but to cover up a large number of things where we were unable to make an accurate diagnosis.

DR. R. C. NEWTON, Montclair, N. J.—I agree with the last speaker in regard to the inadvisability of calling conditions "medical shock" which are due to toxemia, to weakness, to overstraining of heart muscle, and perhaps to overdrugging. I think the term is confusing. If we use this term it will convey to the laity the impression that the physician has done something or allowed something to occur to the patient that could have been prevented. I agree with Dr. Osborne's explanation of the condition, and think that his paper describes vividly a pathological state with which we are all more or less familiar. The paper is interesting and instructive; but it seems to me that if a new name be needed for this condition a better one might be found than the one the Doctor suggests.

DR. OSBORNE, closing—I have but little to add. I do not feel that I ought to back up the term too strongly, yet I think we should have some other term to denote this condition. Heart failure is an opprobrium. If we amputate a man's leg and the man dies we should not say that he died from the amputation of that leg. The way to treat medical shock is to prevent it in much the same way that we prevent surgical shock; there is a prevention for medical shock as there is for surgical shock. I think the term medical shock will help us in making up our statistics.

THE SPREAD OF TUBERCULOSIS BY COUGHING.*

L. NAPOLEON BOSTON, A.M., M.D.

Bacteriologist to the Philadelphia Hospital; Demonstrator-in-Charge of the Clinical Laboratories of the Medico-Chirurgical College.

PHILADELPHIA.

The general opinion held by the medical profession at large has been that tuberculosis is disseminated chiefly by sputum, pus from tuberculous ulcers and sinuses, and from the dejecta of the bowel in persons or in animals suffering from tuberculous enteritis; these substances, from whatever source, becoming dry and later pulverized; they, together with their tubercle bacilli, are carried about by the currents of air. Such dust is commonly agitated by sweeping and dusting of carpets, rugs and furniture in rooms previously occupied by tuberculous patients. Indeed, the investigations of Cornet[1] go far to corroborate this popular belief.

Cornet showed that dried sputum—dust—remained dangerous for months. He collected dust from the floors, walls and furniture of rooms previously occupied by persons suffering from pulmonary tuberculosis in various prisons, hospitals, asylums, and private dwellings, and, inoculating animals with such dusts, he determined the presence of virulent tubercle bacilli. Of the 118 samples of dust collected from the rooms of phthisical hospital patients, 40 were found capable of producing tuberculosis in animals by inoculation. Dust collected from 21 medical wards was also proved to contain living virulent bacilli in 15 of such samples. In one instance the dust was found to be infective six weeks after the death of the patient. Cornet,[2] to prove further the infectiousness of such dust, shook in a room a carpet infected with tuberculous sputum dust, and forty-eight hours later placed in this room 48 healthy guinea-pigs, of which number 46 developed extensive lesions of tuberculosis. Attempts to infect animals by the blowing of tuberculous sputum dust was attended with negative results.

Heron, in the City of London Hospital, and Hance,[3] in the Adirondack Cottage Sanitarium, do not find tubercle bacilli common in the dust of these institutions,

* Read at the Fifty-second Annual Meeting of the American Medical Association, in the Section on Practice of Medicine, and approved for publication by the Executive Committee of the Section: Frank Billings, George Dock and J. M. Anders.

being found in but 1 of the 17 specimens studied. These and other investigators have shown that the air and dust of certain institutions and dwellings occupied by consumptives were contaminated with tubercle bacilli, and this, in connection with the clinical fact that healthy persons who occupied such places were likely to develop tuberculosis, furnished additional support to the belief that infection took place through the respiratory tract; and that the sputum was the chief source of danger, seemed evident.

The swallowing of bacilli from the mouth or upper respiratory tract has long been regarded as a dangerous procedure, as has also been the feeding of infants on milk from tuberculous cows, as shown by Cornet.[4] Klebs, Gerlach, and others have shown that milk from tuberculous cows is capable of producing the disease in animals fed upon such milk. Further, it has been shown by Klebs, Parrot, Aufrecht, Chauveau[5] and other observers, that if the sputum from consumptives be incorporated with the food for susceptible animals, such animals develop tuberculosis. It will suffice to make mere mention of direct infection, since such instances are comparatively rare, and certainly occupy a small percentage of all tuberculous processes.

Flugge[6] was probably the first to consider the question of the dissemination of tubercle bacilli by coughing. "It is not at all proved that inhalation of dried sputum dust can produce tuberculosis in healthy men. If there is infection in healthy men this can be produced either by contact or inhalation, not so much by dried dust as by sputum which is spread in the air in finest drops in coughing." This spray composed of droplets containing tubercle bacilli may float in the air for some time, and be carried by fine currents about the room. Flugge regards this spray to be the true cause of infection, and to support this view he compares the results obtained by spraying dried sputum and moist sputum into cages occupied by experimental animals, in which cases the latter only gives positive results. He calls attention to persons who cough with closed lips, and to those who allow the mouth to remain open while coughing; of these, the latter class only is regarded as dangerous, and this danger is obviated by the avoidance of hard coughing, or the application of a handkerchief to the mouth while coughing.

Laschtschenko continued Flugge's experiments by demonstrating that this spray containing bacteria was produced by loud talking, coughing and sneezing. For this purpose the bacillus prodigiosus was added to the mouth fluids, after which agar-agar plates were exposed in various portions of the room, and in this way the bacilli were recovered at a distance of ten meters from the patient after hard coughing. Tuberculous patients were permitted to cough into a glass box, in a distant portion of which a bowl containing distilled water was placed. This water, after being exposed to the spray emitted by an indefinite number of coughs, often contained tubercle bacilli. Glass plates were exposed one-half to one meter (19.75 to 39.50 inches) distant from the patient's mouth, when he was directed to cough against them, and by the staining of such plates tubercle bacilli were occasionally found.

J. J. Curry,[7] at the suggestion of Prof. Edwin Klebs, studied 12 cases of pulmonary tuberculosis, in all of which the sputum contained tubercle bacilli. Examination of the mouth fluids at various hours during the day, by staining, resulted in the detection of tubercle bacilli in 9 of the cases; bacilli were most plentiful during the morning hours and after a paroxysm of coughing. In 6 of these 9 positive cases, it was extremely difficult to demonstrate the bacilli in the mouth fluids. Glass plates were suspended before the patients, at distances of from one to three feet, during coughing. These plates presented two varieties of spray, one composed of very fine drops, the other of larger drops, one to five millimeters in diameter. In these larger drops were the tubercle bacilli found, 28 being the largest number noted in the large drops. By the staining of these plates Curry obtained positive results in 50 per cent. of cases.

W. Goldie,[8] assisted by Dr. Southerland and Mr. Young, repeated the experiments of Flugge, his assistant Laschtschenko, and Curry. They confirm the statements made by Laschtschenko by using an emulsion containing the bacillus prodigiosus in the mouth; they found that most colonies developed on plates exposed ten feet distant from the patient and at an elevation of five feet, during coughing, these findings being influenced by vigorous coughing and by currents of air. It was further shown that plates were infected at a distance of ten feet by laughing, six feet by loud talking, three feet by ordinary talking, while deep breathing seldom infected plates, even at a few inches from the mouth. During ordinary talking for two minutes, 90 droplets fell on a four-inch glass plate placed eight inches from the speaker, each droplet containing bacteria. Clean glass plates were held six inches from the mouths of phthisical patients while coughing, for twenty-four hours, and when stained by carbol-fuchsin gave positive results, as follows: 60 per cent. of all cases; 60 per cent. where cough was accompanied by expectoration; 33 1-3 per cent. where cough was not accompanied by expectoration; 28 per cent. where plates were used during a single coughing in the morning, and 14 per cent. when used during the evening. The droplets varied from a few (50 microns) to many millimeters in diameter, and were composed largely of thick mucus and leucocytes. Single fields, under the oil-immersion lens, were seen to display from 125 to 200 tubercle bacilli. The mouth fluids were rarely found to contain bacilli, and only when the sputum was noted to be profuse or liquid.

M. P. Ravenel[9] collected, on pieces of soft pine wood, the spray thrown out by tuberculous cows in coughing, by placing the wood near the bottom of a nose-bag which the animal wore for a variable time. In cases where only a small amount of spray had collected, this, when transferred to cover-glasses and stained, was always found rich in tubercle bacilli, and it was possible to demonstrate the bacilli in the spray from every tuberculous animal studied. Of 22 guinea-pigs inoculated with portions of this spray, 11 became tuberculous. Guinea-pigs were exposed to the breath of tuberculous cows, but in no instance did infection occur. Noteworthy is it that these cows were not all in the later stages of the disease, one living for more than two years after the experiments were made.

The causes which prompted me to investigate the degree with which tubercle bacilli are disseminated by coughing were as follows: 1, from the mouth of an inmate of the Philadelphia Hospital who presented the conditions common to advanced phthisis, I noticed that fine droplets of sputum were ejected with each cough, and 2, I observed that coughing was often excited by eating, not only in patients confined to their beds, but also in those able to walk to the dining-room. It ap-

peared to me that if this fine spray contained tubercle bacilli, when produced in such quantities in the dining-room where it must of necessity fall upon the food to be eaten by others, as well as those producing such spray, furnished a potent factor in the dissemination of tuberculosis, and possibly explained why patients in the early stage of the disease did not do well in this institution, where every possible attention is given to ventilation, light, and the disinfection of sputum.

METHOD OF COLLECTING SPRAY.

This was accomplished by means of a mask (Figs. 1 and 2). It was made from German silver wire, one piece of which is molded to fit the face, resting on the nose, cheeks and chin. To obviate any irritation to the patient, this portion was covered by a piece of rubber tubing. Suspended from this wire is a second oblong portion provided with two lateral grooves, which serve to accommodate two microscope slides. When the mask

is in position the slides are held directly in front of the mouth and nose, at a point three inches distant from the lips. The mask is held in position by an elastic band which passes above the ears and over the occiput.

Patients were allowed to wear the mask with the clean slides in position for from one to one and a half hours, during the day when they were apt to cough least and were instructed to remove it during a paroxysm of coughing. It was never worn during the morning or evening; the object being not to collect on the slide the spray produced by vigorous coughing, which had already been studied, but to determine whether or not consumptives emitted a fine spray, when talking, laughing, clearing of throat or by their characteristic hacking, that was in any way dangerous to the health of their associates.

Fifty patients, 34 males and 16 females, all of which presented unquestionable evidence of either pulmonary or laryngeal tuberculosis and in whose sputa tubercle bacilli had been found, were made to wear the mask as above described.

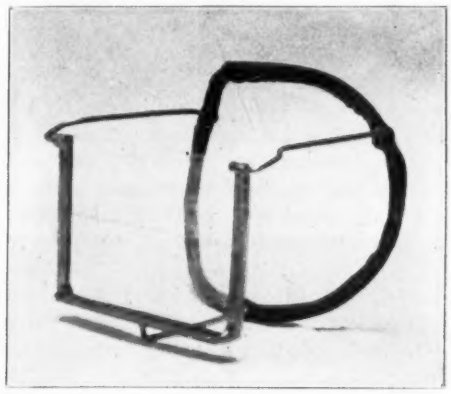
NAKED EYE APPEARANCE OF SPRAY.

This varied greatly and since patients were cautioned not to encourage coughing, no satisfactory explanation for such changes was noted. Certain slides displayed many droplets, varying from the size of a pin's point to that of its head. Others showed few droplets, while a third variety presented an evenly-spread film, very thin, covering the entire slide and seldom showing any distinct droplets.

MICROSCOPIC STUDY.

Specimens were fixed and stained by carbol-fuchsin and Gabbett's acid blue solution. Of the specimens collected from 50 patients, those from 49 were found to contain bacteria—the diplococcus and the streptococcus being the most constant, yet baccili and clusters of cocci were not unusual. A single minute droplet often contained organisms of each class.

Of these 50 specimens, 38 were found to contain tubercle bacilli in variable numbers, four to six bacilli being the smallest number found in any specimen, and many of the specimens, under a 1/12 oil-immersion lens, showed fields of bacilli too numerous to be counted. In fully one-third of the positive cases the bacilli were



very numerous. In one of the specimens where I hunted for fully one hour and passed the specimen as one not containing tubercle bacilli. Dr. W. J. Hawke, resident pathologist, in studying this slide later, found a droplet containing more than forty bacilli. I am further indebted to Dr. Hawke for his untiring interest and valuable assistance rendered.

Among other findings were large and small squamous epithelium and occasionally very small epithelial cells more or less intimately connected with thick mucus and leucocytes. The tubercle bacilli were commonly associated with these elements, but were occasionally found singly or a number of bacilli without any other elements in the field.

CONDITIONS INFLUENCING THE SPRAY.

From patients showing tubercular laryngitis and from those who talked loudly, or who were frequently clearing their throats, the most spray was found. In patients very weak, speaking only in a whisper, scarcely any spray collected on the slide and this seldom contained bacilli. Men wearing heavy mustaches ejected no spray on the slide until after the mustache was held from falling over the mouth. Coughing with the mouth open must necessarily favor the production of the spray.

Of the 12 negative cases, these explanations are

given: Sputum from 3 such patients contained only few bacilli and these were not found until after several examinations, none being found at the time when the specimen slides were collected. Another showed no bacilli in his sputum, yet autopsy revealed cavity formation. Three were extremely weak and did not talk while wearing the mask. The remaining 5 presented marked sprays containing many bacteria; yet careful examination failed to reveal the presence of tubercle bacilli.

The detection of the bacilli in these fine droplets of the spray was greatly facilitated by the use of a low power lens for the purpose of locating such droplets; after which a 1/12 oil-immersion lens was used. Droplets not perceptible to the naked eye were often found in this manner, and such minute particles not infrequently contained tubercle bacilli; at times they were present in great numbers. By the employment of these methods, it can be stated with safety that the finding of tubercle bacilli in the spray emitted by consumptives during the act of coughing, sneezing, laughing, and talking, is not attended with greater difficulties than is the finding of the bacilli in the sputum of patients early during the course of the disease.

VALUES IN DIAGNOSIS.

These are doubtless limited. However, from the extreme difficulty one always meets in eliciting satisfactory physical signs from the chest examinations of the insane, and since we are seldom able to collect the sputum from such patients, it would appear that if they be carefully guarded by the attendants, this method of collecting their sputum for clinical study should have at least a limited field of usefulness. In nearly all instances a slide could be placed in a forceps and then held by an attendant before the patient's mouth during one or more vigorous coughs. In one instance, that of a colored female, aged 19, few bacilli were found after wearing the mask for one and a half hours, during which time she did not cough, while the spray from a single cough during a paroxysm showed many bacilli. Where the mask was worn for ten minutes during such periods great numbers of bacilli were found.

Children, likewise, seldom expectorate and a mask could readily be adjusted to the face of any child, and by carefully instructing the nurse, specimens could be collected during the acts of coughing or crying. This, as well as its value in the clinical study of the insane, must be further tried, and estimated only from the results obtained.

HYGIENE.

Now that it is shown that the secretions of the mouth and respiratory tract are atomized and given off in the form of a fine spray, in both health and disease, and that this spray contains bacteria and other cellular elements known to be common to such secretions, it is reasonably fair to suppose that many other diseases are conveyed by this medium, and that the work accomplished through the study of consumptives is but a step in a direction which bids fair to modify, in a measure at least, the hygiene of infection. Conditions affecting these organs and consequently their secretions must of necessity be spread in this way; especially is this true of diphtheria, tonsillitis, and possibly other conditions, the etiology of which is not definitely known, such as smallpox, measles, scarlet fever, whooping cough, mumps, etc. It further furnishes additional cause for the rigid disinfection, now universally carried out, in connection with all cases known to be infectious in character.

Droplets alighting on clothing must serve as a favorable means to convey disease from house to house; and that man may become infected by the spray thrown off by horses, cows, and other domestic animals suffering from glanders, tuberculosis, influenza and similar affections, appears highly probable.

SURGICAL VALUE.

To repeat, "experiments show that during ordinary talking for two minutes, ninety droplets may fall in a four-inch circle at a distance of eight inches, each of these droplets containing from dozens to thousands of bacteria." (Goldie). At first this would tend to convey the impression that the danger of infecting open wounds during an operation by the sprays produced by the talking of the surgeon or any of his assistants is extremely great, and this would doubtless be true where any person assisting in the operation is suffering from either an acute or chronic infection of the mouth, throat, or respiratory tract. A fact ever to be borne in mind is, that in health this spray may contain great numbers of bacteria; yet few, if any, such organisms possess the properties necessary to infect man, even when introduced into an open wound. The advisability of all persons being provided with a mask of gauze on entering the operating room, to prevent all possibility of their contaminating the air of the room, would appear from a bacteriologic standpoint to be a rational procedure; yet before this precaution can be urged, it, too, must be tried by the surgeon, and shown to lessen the number of cases of infection for which at present no ascribable cause is given.

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TREATMENT OF CERTAIN FORMS OF CANCER BY THE X-RAYS.

FRANCIS H. WILLIAMS, M.D.

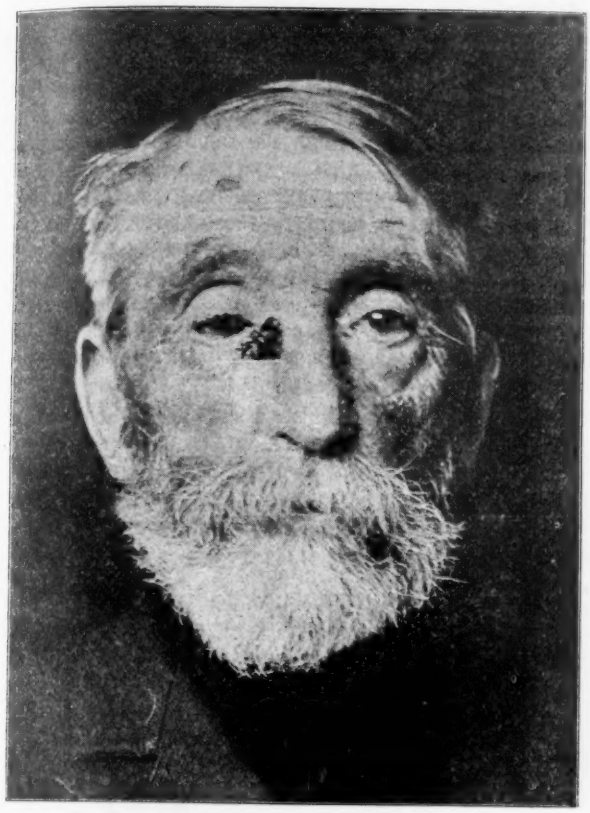
BOSTON, MASS.

It is well recognized that cancer is on the increase, and reliable statistics made in various countries and extending over periods of years prove that the rapidity of this increase is surprisingly great. Any method of successful treatment, even though it may be limited in its application to certain forms of this disease, will prove to be a great boon to humanity. Further, as is natural with the advance in the application of science to medicine, the opportunities for the irregular practitioner will be curtailed.

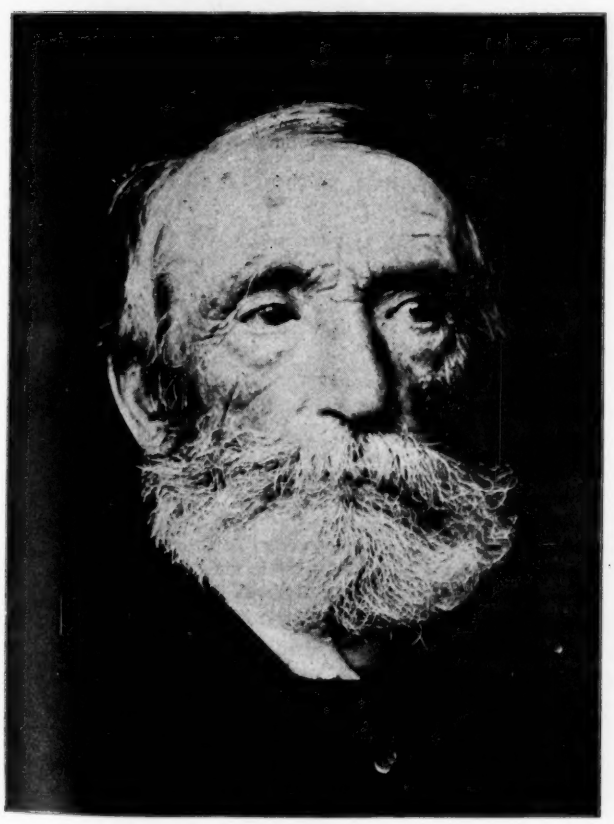
Although I shall refer to but few of the cases I have treated, I hope to present enough to have the reader share my opinion, namely, that in the *x*-rays we have an agent which causes superficial external forms of cancer to heal; and this may be done without pain to the patient.

From the standpoint of treatment by the *x*-rays, cancers may be divided according to their position into external and internal forms. Of the internal cancers

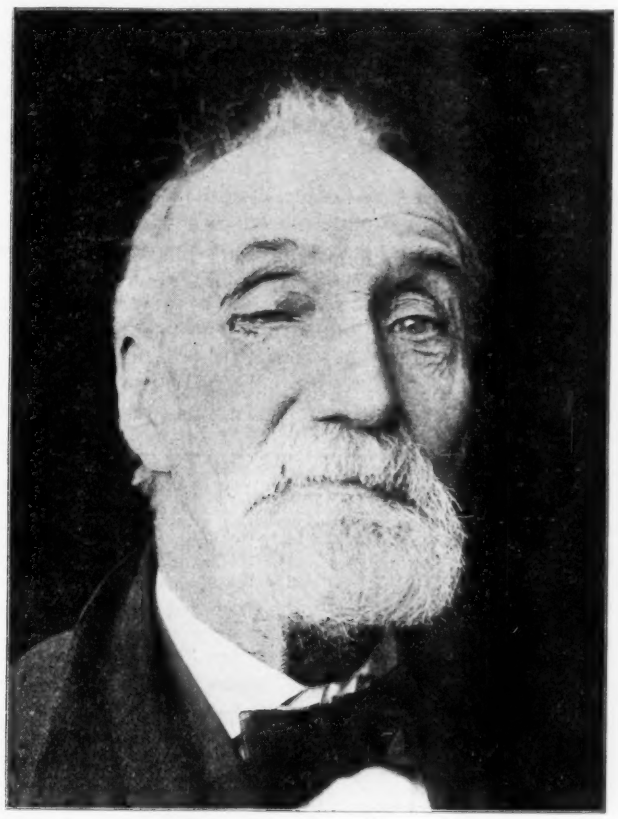
I will not speak at the present time, as it seems better to wait until I have had more experience with them, but will take up the external forms, which thus far appear most suited for treatment by this new method. I think the subject can be best presented by a brief report illustrated by photographs of some of the cases that have been or still are under my care.



Rodent Ulcer. Before treatment.



Rodent Ulcer, duration nfteen years. After treatment by X-rays. The ulcer, which was a deep one, healed by first filling up from the bottom and then closing over. The healing went on without pain or inconvenience to the patient.



This case shows how harmless the X-rays may be, when carefully used, even near the eye.

By further treatment by the X-rays this has improved more than is shown in these photographs.

The diagnosis in all the cases which I have treated, except one, which was undoubtedly a rodent ulcer, has been made by means of the microscope. They include epidermoid cancers, typical epitheliomas, and rodent ulcers, and also cases which had the clinical appearance of beginning cancers, but which under the microscope were found to be plasmoma, or simply cases of ulceration and necrosis, or chronic inflammatory tissue.

As the first cases of cancer yielded to treatment by the *x*-rays, I became sanguine enough to state to new patients that this method would cause the growth to disappear if it were cancerous in nature; if, however, the microscope showed that it was not of a serious form, I felt obliged to give a doubtful prognosis. But further experience teaches me that those growths which clinically resemble beginning epitheliomas also yield to treatment by the *x*-rays, and the indication is that we have in this new agent a useful therapeutic measure for most—possibly for all—forms of external new growths, except perhaps those due to syphilis.

Epidermoid Cancer of Lip.

Epidermoid Cancer of Lip. After treatment by the X-rays.

From the fact that the *x*-rays are useful in treating a variety of abnormal conditions of the skin, or parts near by, it would seem that their local action must stimulate healing or that these abnormal conditions are due to organisms to whose life or life conditions the *x*-rays are inimical.

Thus far, all the forms of superficial growths mentioned above have yielded to treatment by the *x*-rays. That is to say, in every case, with the exception of one of rodent ulcer where the treatment was pursued for a short time only—and of course should not be included—the new growth has disappeared, or is improving under treatment. It would therefore seem that we have undoubtedly for external growths, a new, painless and harmless form of treatment, and also one which yields excellent cosmetic results. Whether these new growths will return within two or three years, can only be determined by time; but if there should be a recurrence, treatment can again be instituted.

This form of treatment also has the advantage of causing a diminution, or cessation of the pain resulting from the new growth, and the disappearance of foul odors from discharging ulcers. Further, it should encourage patients who have suspicious growths to consult a practitioner in regard to them at the very earliest moment, and not delay, as many are inclined now to do, through dread of the knife, until the growth has attained greater size and caused more inconvenience.

Great care is necessary to carry out the treatment properly. First, the surrounding parts should be protected from the action of the rays, and second, the treatment should not be pursued so vigorously as to cause an *x*-ray burn. While in making the ordinary *x*-ray examinations—as, for example, examining the heart and lungs—there is no risk whatsoever to the patient, of an *x*-ray burn, in treating cases of cancer it is necessary to have the tube so near the patient that, in unskilful or inexperienced hands, a burn may result. This might be a serious matter, as such burns yield only slowly, and might cause disfigurement. I do not mean to suggest that an *x*-ray burn is a necessary result of the treatment in external cancers; quite the contrary, for all of my cases have been treated without the occurrence of this accident, but I desire to emphasize the necessity for care.

The details of treatment and the various precautions to be taken I have considered fully in my book on "The Roentgen Rays in Medicine and Surgery," and there-

fore will not present them here, as it would occupy too much of your time.*

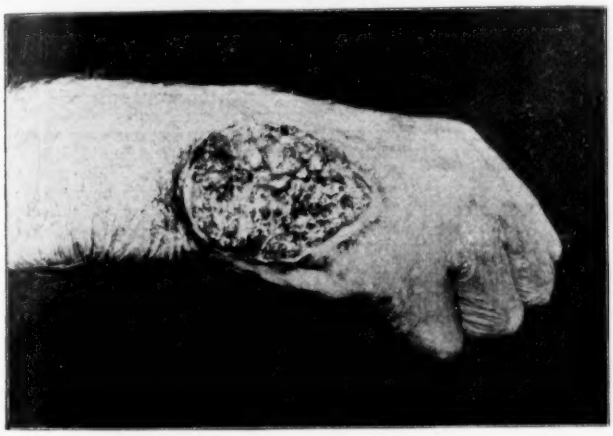
In the following cases from which these photographs were taken, the microscopic examinations were kindly made by Dr. F. B. Mallory, assistant pathologist of the Boston City Hospital.

The first is an epidermoid cancer of the lip, and the photographs show the results obtained. The diminished amount of hair seen above the lip is not due to the *x*-rays, but to the fact that the patient shaved off his mustache after the first two photographs were taken, but let it grow again shortly before the last two were made.

The second case is an epithelioma of the eyelid, which was treated without causing the slightest trouble in the eye and without interfering with the work of the patient. Treatment was suspended for a time in this case, owing to my absence, but the improvement, already begun, continued during this interval.

The third case is that of a rodent ulcer on the side of the nose and cheek. The photographs, taken before and after treatment respectively, need no comment. They speak for themselves, like those already shown.

The last case that I shall take up is an epithelioma of the right hand, and is improving, but still under



Typical Epithelioma of Hand, before treatment by X-rays. This was 4 cm. wide and 7 cm. long.

treatment. The growth was cauliflower-like in form, four centimeters wide by seven long, with raised, indurated edges. The photograph shows the condition before treatment was begun. In inoperable cases, such as those of the orbit, the tongue or the larynx, the *x*-rays should be tried in the most thorough manner.

The external growths that I have treated with good results have varied in the length of time they have existed from a few months to twenty years. This fact shows that even when the growth is of long standing the *x*-rays are of assistance.

It has been known for many years that these growths yield to treatment by various forms of caustics, so that if the *x*-rays simply act as a new form of caustic, some of the older forms might rather be employed; but my experience shows that we have in the *x*-rays a therapeutic agent that is novel in its mode of action, and that these growths disappear without a burn being produced.

The advantages of this new method may be summed up as follows: The treatment causes no pain; healing is produced without creating a burn; some cases improve after a certain number of sittings without further renewal of the treatment; the treatment can be carried out without interfering with the work of the patient.

The disadvantages are that the necessary apparatus is expensive and difficult to use; that great care must be exercised when the *x*-rays are employed as a therapeutic agent, and that the treatment must often be continued for some weeks.

* The cuts shown herewith are inserted by permission of the MacMillan Company.

THE RELATION OF UNBALANCED PHYSICAL DEVELOPMENT TO PUBERTAL MORBIDITY AS SHOWN BY PHYSICAL MEASUREMENTS.*

W. S. CHRISTOPHER, M.D.

Professor of Pediatrics, College of Physicians and Surgeons.
CHICAGO.

The measurements upon which this paper is based were made by the Child Study Department of the Chicago Public Schools, under my direction as Chairman of the Department. The gentlemen composing this department are Mr. F. W. Smedley, Director, and Messrs. C. C. Krauskopf, Daniel P. McMillan, and C. Victor Campbell, assistants. These gentlemen are all thoroughly equipped for the work, and large experience in making measurements has made them exceptionally accurate, and this skill on the part of the observers gives great weight to the observations. I wish to acknowledge particularly my indebtedness to Mr. Smedley, who jointly with me has discussed every phase of the work done by the Department, and every detail of its official publications.

The tables are based upon the measurements of 6259 children, 2788 boys and 3471 girls. Seven measurements were made of each child, except that no ergographic work was done with children under 5 years of age.

The children examined were all pupils in the Chicago Public Schools and were mainly the children of American parents in comfortable circumstances, the schools where the examinations were made being selected with reference to these points. In each school, however, all pupils were examined. These measurements include net stature, height sitting, weight with ordinary indoor clothing, endurance as measured by the ergograph, strength of grip of the right hand, strength of grip of the left hand, and the so-called "vital capacity" or volume of expired air. The methods of making these measurements, and the instruments employed were described in my paper "Measurements of Chicago School Children," read before this Society last year, and therefore need not be repeated here.

Table 1 gives the norms for each sex, in each of the several measurements, at each of the ages from 4 to 21 inclusive. These norms have been determined by averages, the actual computations being made with the aid of an adding machine. The table also gives the average ages and the number of children of each age examined. The norms given last year were medians, and a comparison of the two tables will show that they differ but slightly from each other, except at ages at which the number examined was considerably increased, and even in such cases the differences are really not great, the greatest difference in stature, for instance, which is found being only 13 mm. The close coincidence of these tables measures their approximation to the truth.

* Read before the American Pediatric Society, at Niagara Falls, May 29, 1901.

At the time of making the measurements, the birthday of each individual was recorded, and from this the exact age in years, months and days was computed. All those having the same age in years were grouped together, and the averages of the exact ages, as well as the averages of the several measurements were calculated. As will be seen from the table, where the ages are expressed in years, months and days, the average ages approximate the even half years, but differ from them more or less, and in both directions. By determining the exact number of days between consecutive ages, figures were obtained which upon division into the corresponding differences in the other measurements gave the average daily increments of those measurements at the several ages. With the aid of these factors the norms were reduced to the integral years and half years. These norms we have called birthday norms, and they are given in Table 2. Table 3 gives the average monthly increments of the several measurements at the different ages. With the aid of these monthly increments and of

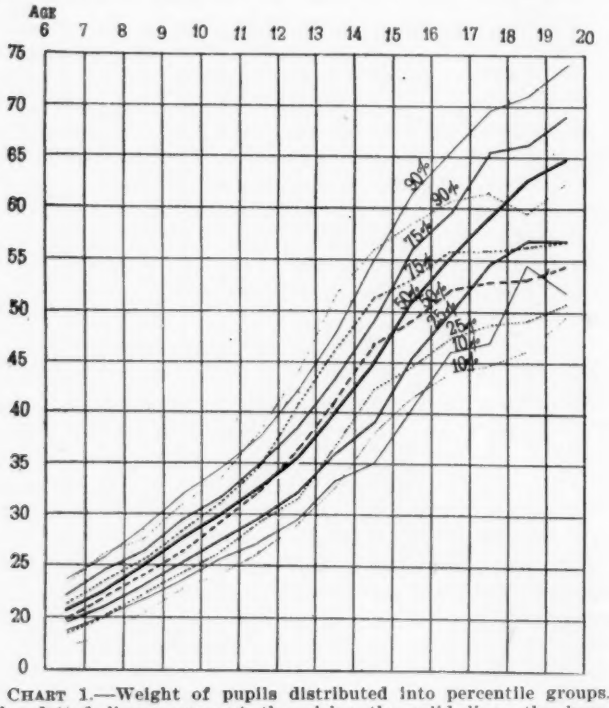


CHART 1.—Weight of pupils distributed into percentile groups. The dotted lines represent the girls; the solid lines the boys. Based on data in Table IV.

the table of birthday norms, the average normal measurements of a child of any age can readily be computed.

Table 4 is based upon the distribution of the children measured into percentile groups. Thus, of all the 4-year-old boys measured as to stature the shortest was 86 cm. tall; 10 per cent. were below 96 cm.; 25 per cent. were below 98 cm.; 75 per cent. were below 104 cm.; 90 per cent. were below 107 cm.; and the tallest measured 116 cm. On such basis this Table 4 has been computed, the distribution into percentile groups being given for each of the several measurements taken, for each age and sex. As originally printed in the second report of the Child Study Department, this table contains some errors. These errors have been corrected from the original records of this Department for the table here presented, and the table will be found correctly printed in the Forty-sixth Annual Report of the Chicago Board of Education, which will appear soon. The items of this table which relate to weight are shown graphically in Chart 1.

Table 5 shows separately for each sex and for each of the physical measurements taken the following points: 1, the special measurement under consideration, at the beginning of each year, as shown in the table of birthday norms; 2, the increase in that measurement found at the beginning of the next year, or the increment during the year; 3, the percentage that this increment is of

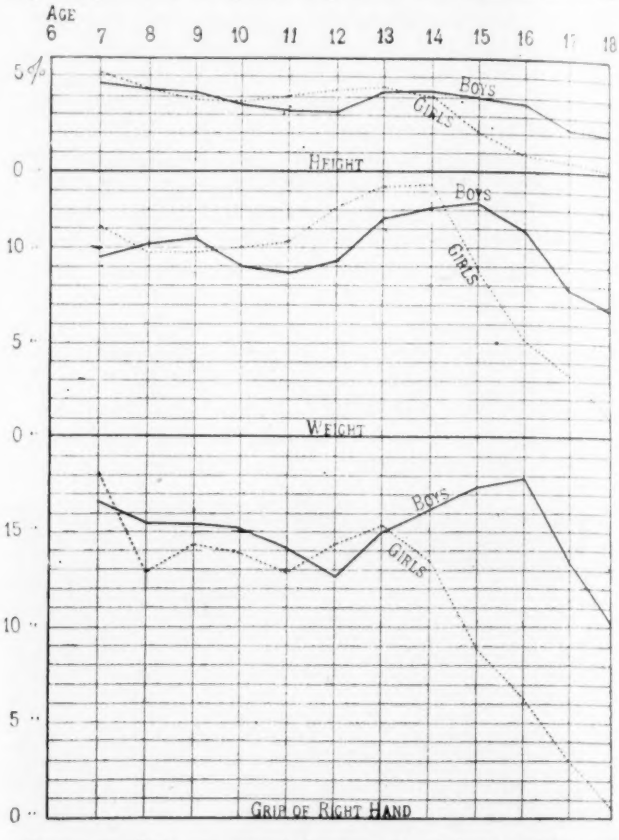


CHART 2.—Rate of annual increase in stature, weight, and strength of grip. Based on data in Table V.

the measurement at the beginning of the year during which it has occurred. These percentages of annual increase are shown graphically in Charts 2, 3 and 4.

An examination of these charts reveals some important truths of child life. First directing attention to the chart of annual percentage increase in height of boys, it is seen that the general trend of the curve is downward.

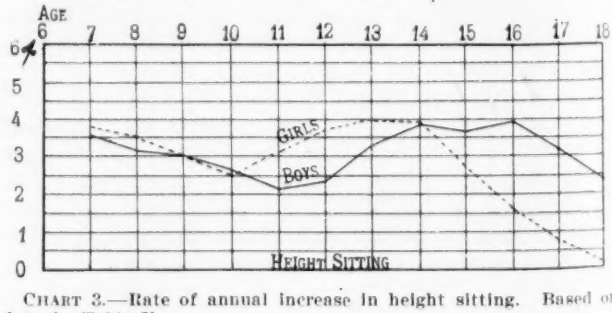


CHART 3.—Rate of annual increase in height sitting. Based on data in Table V.

From 7 to 9 the line is practically straight and if extended will be found to coincide with the line from 17 to 18. But from 9 to 12 the curve drops below this general trend, indicating a period of relative quiescence in growth. From 12 to 17, however, it rises above the line of general trend and indicates a period of accelerated growth. The curve for girls shows a less well-marked quiescent period, a better marked and shorter rise, and a

greater and more rapid decline. In each of the other measurements it is seen that there is a sharp rise commencing at 11 or 12 in boys, and generally a year earlier in girls, and in general following the conditions noted with regard to stature. It does not seem justifiable to attempt an interpretation of the minor features of the curves, but the following seems to me to be fairly shown:

There is an exaltation of life processes at the pubertal period which finds its expression not only in an increased rate of growth, but also in the development of physical power. This exaltation is preceded by a period of relative quiescence. In the sexes this exaltation differs in that it commences earlier and has a shorter duration in girls than in boys; moreover, it is more marked in girls than in boys in weight and in stature, and less marked in measurements involving physical power.

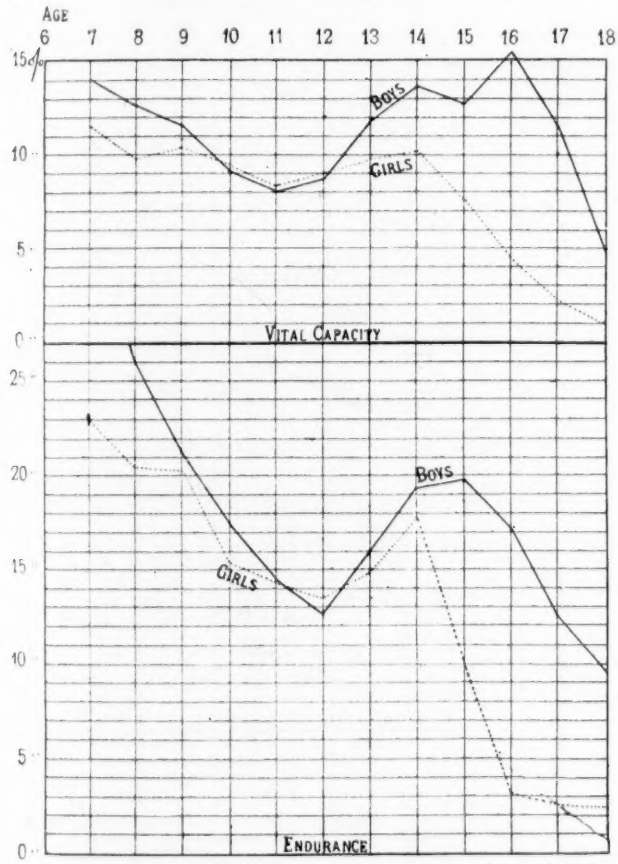


CHART 4.—Rate of annual increase in vital capacity and endurance. Based on data in Table V.

This pubertal exaltation has often been shown before as to height and weight, but I am not aware of any other investigation which shows it to be true of so many physical measurements.

In Table 1 the averages of each measurement for each age are given. The curves representing these averages are necessarily lines, but it is certainly true that there is a range of variation about these lines which must be considered normal, so that normal measurements should be represented by a belt rather than a line, for certain purposes at least.

Tables 6 and 7 and the corresponding charts show an attempt to investigate the nature of this belt. For this purpose the tables of percentile groups are utilized. Tables 6 and 7 are classified with reference to the sexes, ages, and the several physical measurements made. Each section of these tables gives four columns. The first column gives the difference in the measurement, or the range of the measurement, between the 10 per cent. group and the average given in Table 1. The second column gives the range between the average of Table 1 and the 90 per cent. group. The third column gives the range between the 10 per cent. and the 90 per cent. groups, or the range of measurement of the middle 80 per cent. of the children. The fourth column gives the difference in measurement between the 25 per cent. and the 75 per cent. groups, or the range of the middle 50 per cent. of the children. Columns 3 and 4 are graphically represented in Charts 5 and 6, while columns 1 and 2 are graphically represented in Charts 7 and 8.

From examination of Chart 5, which shows the absolute range of measurement of the middle 50 per cent. and the middle 80 per cent. of boys, it is clear that there is a general pubertal increase in the range of the measurements of both groups of the children, and that this increase in range is more marked in the larger than in the lesser group. Chart 6, relating to girls, shows these facts with reference to girls rather more clearly than they are shown with boys. Moreover, the pubertal increase in range occurs earlier in girls, as was to have been expected.

It is still necessary to determine how the ranges of measurements are distributed with reference to the average measurements at the several ages. This is shown in Charts 7 and 8, which show that in both sexes the range is distributed almost uniformly about the average line. While puberty is a period of great exaltation of life processes, Charts 5 to 8 show that it is also a period of great individualization. It is a time when the weak fail and the able forge to the front.

It is well known that mortality is less at puberty than at any other period of child life, and Axel Key has shown that the morbidity is high at this period. In my judgment, the explanation of the low mortality will be found in the laws illustrated in Charts 2, 3 and 4, while the conditions shown in Charts 5, 6, 7 and 8 will be found to have an important bearing upon the causation of the high morbidity.

The neuroses, psychoses, neurasthenias, cardiopathies, deformities and anemias of puberty are the principal morbid manifestations of the physical, intellectual and emotional turmoil which characterize the period.

At first thought it would seem that the subnormal portion of the belt shown in Charts 5 to 8 would contain the children who present the pathologic conditions. This, however, is not the case. It is the great range of the physical measurements of this period which permits of the existence in the child of an enormous lack of balance in the physical measurements, and it is this condition of lack of balance which gives rise to the morbid manifestations. For instance, if in a child the normal exaltation of height and weight, or of either, passes beyond, or taxes heavily, the capacity of the organs of nutritive supply, the child is on the borderland of physical insolvency, and any excessive voluntary expenditure of energy may be followed by morbid symptoms. In one case under my care (see Case 1), a neurotic boy, who increased in weight with great rapidity, had an epileptic convulsion follow every instance of excessive exertion. One such seizure followed a 20-mile bicycle ride, and another a game of baseball. He was practically free from convulsions as long as he refrained from unusual expenditure of energy. Rapid increase in stature, associated with deficient nutritive supply, is commonly productive of stoop and muscular atrophy, and is usually accompanied with rapid and irregular pulse,

and manifestations of fatigue and neurasthenia. It is in such cases also that the dilatation of the heart, well known to occur at puberty, is to be found. These cases require for their proper management rest, improvement in general nutrition, and the much-despised shoulder braces.

In general it may be said that an important factor in pubertal morbidity is unbalanced physical development.

The great range of pubertal measurements which makes possible the extensive unbalanced physical development of the period, being physiologic, is directly traceable to heredity, but there are factors other than

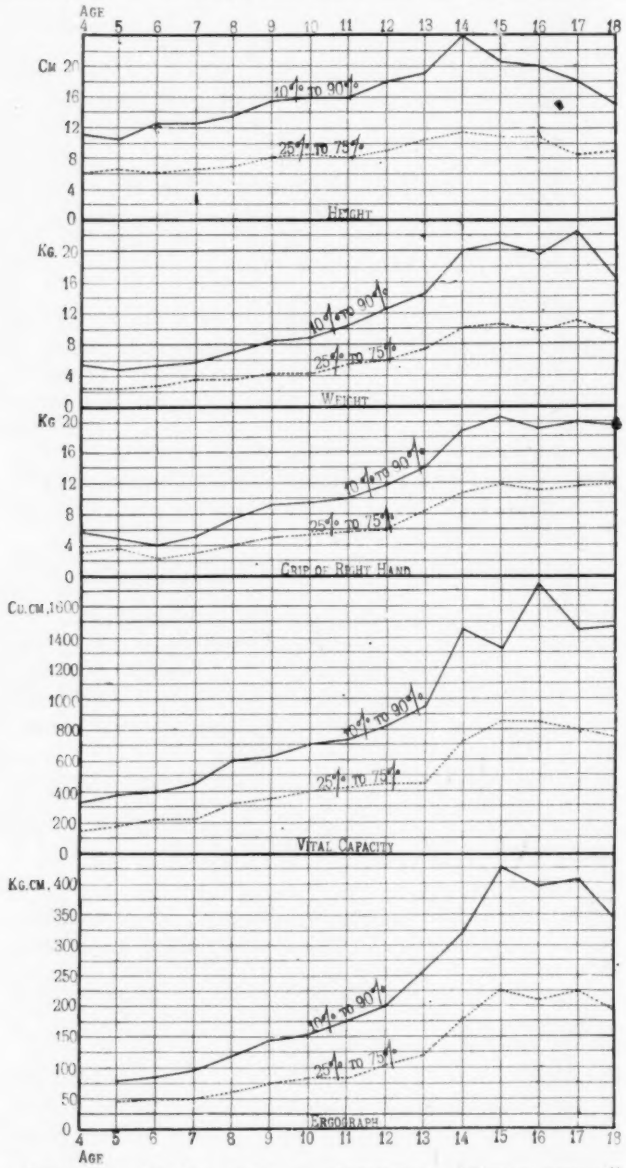


CHART 5.—Absolute range of measurements between percentile groups—Boys. Based on data in Table VI, columns 3 and 4.

heredity which assist in the production of the actual lack of balance itself, and which must be taken into consideration in determining the management of individual cases. These factors are nutrition and the physical and mental activities of the child.

I present here a plan for the investigation of cases of unbalanced physical development. The first three divisions of this plan are in general etiologic, and the last three are in general resultant, but such a classification would not be strictly accurate, for examination will show that some of the factors of the second group bear at times etiologic relations to factors in the first group, which means that vicious circles exist and that some conditions mutually augment each other.

PLAN FOR INVESTIGATION OF CASES OF UNBALANCED PHYSICAL DEVELOPMENT.

1. Hereditary tendencies and influences.

2. Nutrition. *(a)* Food supply (quantitative and qualitative). *(b)* Condition of nutritive organs, viz.: gastroenteric tract and liver. *(c)* Condition of the blood. *(d)* Type of the general metabolism. *(e)* Condition of the eliminating organs.

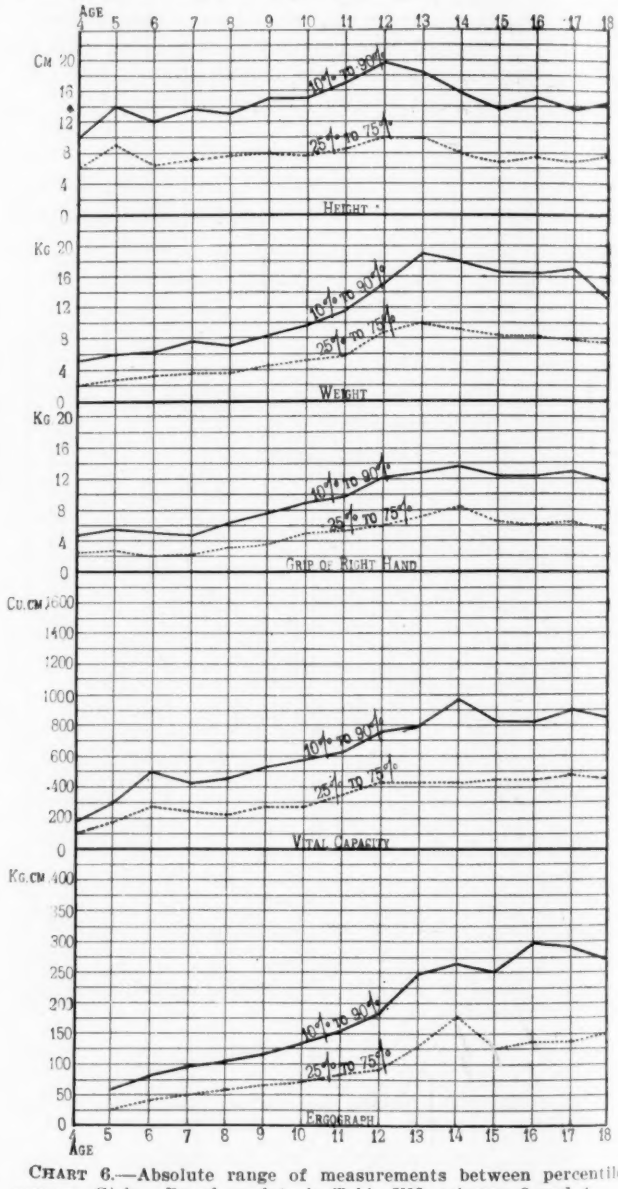


CHART 6.—Absolute range of measurements between percentile groups—Girls. Based on data in Table VII, columns 3 and 4.

3. Activities, physical and mental.

4. Commensurable physical conditions for which norms have been determined for comparison. *(a)* Weight. *(b)* Height. *(c)* Height sitting. *(d)* Strength of grip; right and left. *(e)* Vital capacity. *(f)* Endurance.

5. Relative capacity of other organs to demands made upon them, especially the heart and brain, and for which norms as to capacity do not exist, and possibly cannot be determined, but which must be estimated by means more or less indirect.

6. Conditions and symptoms resulting from the lack of balance.

For purposes of illustration a few cases are presented. With each case brief descriptive notes are given, together with a series of measurements of heights and weights. The age of the patient at the time of each measurement is given, together with the age at which the measurement found will be the normal average, according to Tables 2 and 3. This gives a basis for estimating the condition of developmental balance. In these cases

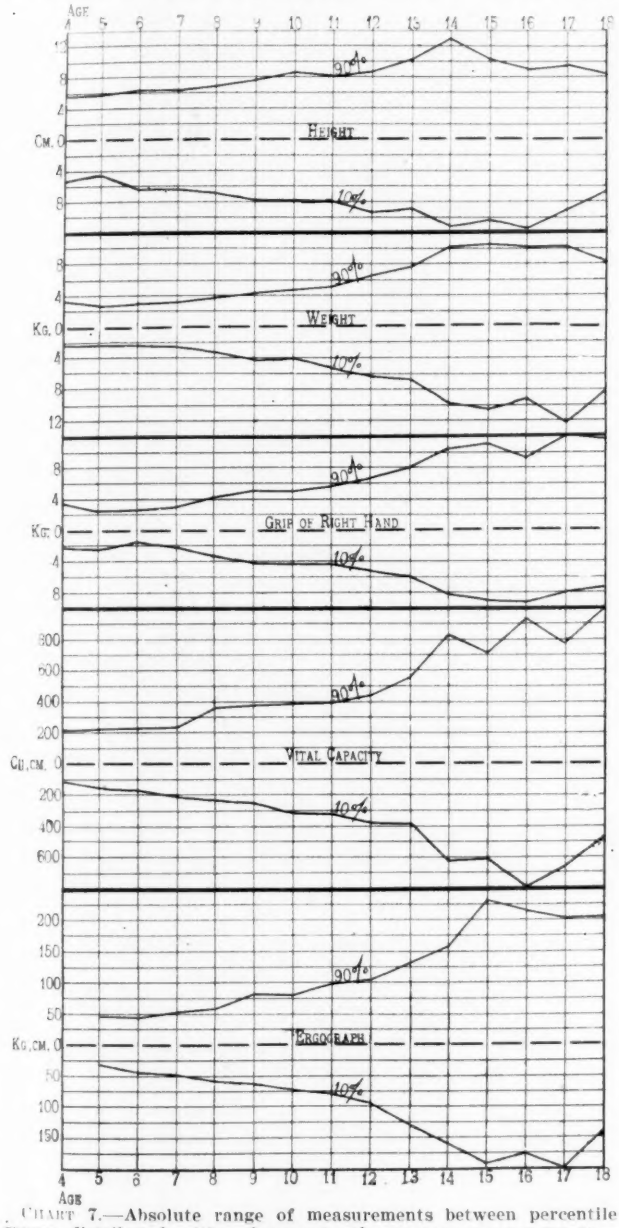


CHART 7.—Absolute range of measurements between percentile groups, distributed with reference to the average measurements—Boys. Based on data in Table VI, columns 1 and 2.

no attempt at completeness of exposition is made, as it would only obscure the illustration of the condition of unbalanced physical development and its resulting morbid manifestations.

CASE 1.—WM. S.—BIRTHDAY, AUG. 16, 1883.

Date.	Age. Yrs.	Mos.	Normal Age for Ht. Yrs.	Mos.	Normal Age for Wt. Yrs.	Mos.	Net. Ht. mm.	Wt. lbs.
'96-8-16	13	1	15	..	15	7	1580	113.0
12-14	13	5	..	..	17	1	....	127.3
'97-1-27	13	6	..	..	17	6	....	130.5
4-6	13	8	..	..	18	..	....	135.3
6-6	13	10	..	..	17	7	....	131.5
7-27	14	..	..	..	17	9	....	133.3
10-11	14	2	..	..	18	..	....	135.5
10-26	14	3	15	8	18	3	1621	137.1
11-24	14	4	..	..	18	7	....	140.0
12-9	14	4	..	..	18	6	....	139.8
12-24	14	5	..	..	*		....	142.3
'98-1-18	14	6	..	..	..	..	....	143.8
3-2	14	7	..	..	..	..	....	138.0
3-28	14	8	..	..	..	..	....	142.5
4-20	14	9	..	..	..	..	....	143.0
5-25	14	10	..	..	..	..	....	144.0

* Above highest normal average of tables.

Epileptic; excessive and rapid weight increase; unusual exertion always followed by convulsions.

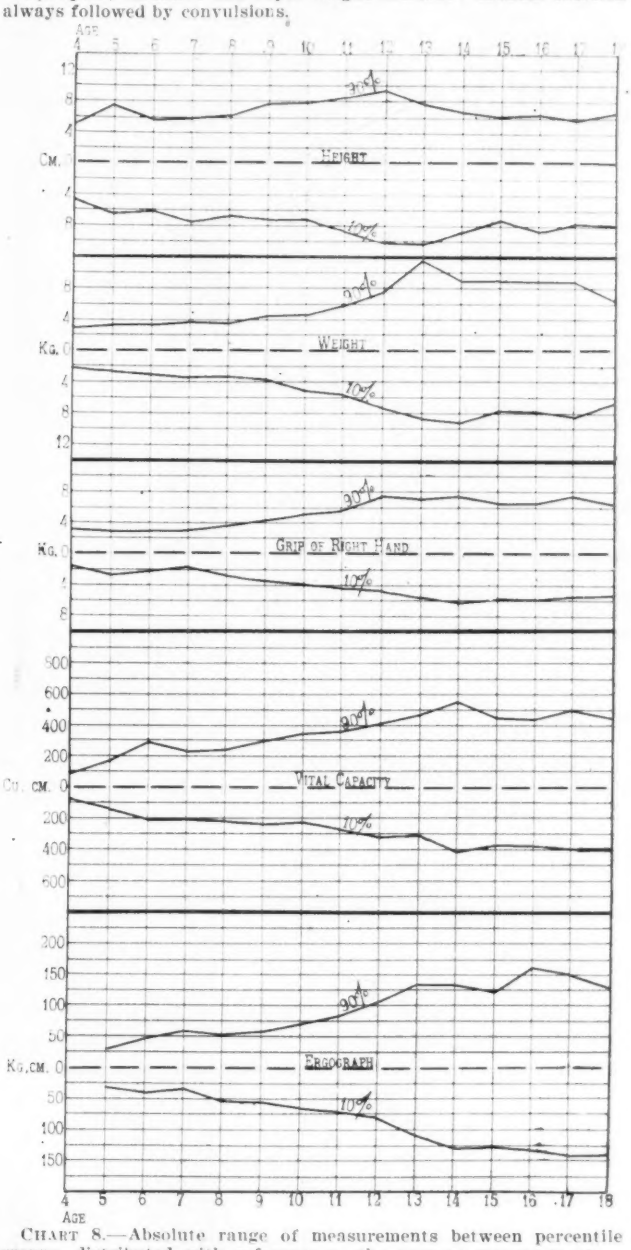


CHART 8.—Absolute range of measurements between percentile groups, distributed with reference to the average measurements—Girls. Based on data in Table VII, columns 1 and 2.

CASE 2.—MARJORIE P.—BIRTHDAY, MARCH 5, 1891.

Date.	Age. Yrs.	Mos.	Normal Age for Ht. Yrs.	Mos.	Normal Age for Wt. Yrs.	Mos.	Net. Ht. mm.	Wt. lbs.
00-12-22	9	10	12	9	12	2	1464	77.7
'01-2-2	9	11	13	1	12	6	1481	80.0
3-12	10	..	13	1	12	7	1483	81.9
4-20	10	2	13	1	12	7	1486	81.5
5-18	10	2	13	5	12	9	1506	83.3

Bad temper; cries easily; does not like to play; marked mental hebetude; stooped shoulders; perfect picture of fatigue. In four months' time height has increased 8 months, and weight has increased 7 months, and both were, when first seen, much above normal—height 35 months, and weight 28 months. A typical case of excessive growth and profound fatigue. Is improving.

CASE 3.—GRACE L.—BIRTHDAY, DEC. 9, 1888.

Date.	Age. Yrs.	Mos.	Normal Age for Ht. Yrs.	Mos.	Normal Age for Wt. Yrs.	Mos.	Net. Ht. mm.	Wt. lbs.
98-1-28	9	2	11	6	11	11	1385	75.0
4-11	9	4	..	..	12	..	....	75.5
'00-1-20	11	1	14	9	14	2	1565	101.5
2-24	11	2	14	6	14	6	1560	103.1
4-21	11	4	14	4	14	9	1557	105.5
5-15	11	5	14	4	14	5	1557	102.2
10-6	11	10	15	10	14	7	1580	104.1
'01-2-15	12	2	16	1	15	6	1585	108.8
4-25	12	5	18	8	15	8	1597	109.8

Fatigue; anorexia; stoop shoulders. From above table the following is formulated: In two months weight increased 1 month; fatigue and stoop. In 23 months height increased 39 months, weight increased 26 months; fatigue and stoop. In 9 months height increased 13 months, weight increased 5 months; fatigue and stoop. In 4 months height increased 3 months, weight increased 11 months; improvement; started to school. In 3 months height increased 27 months, weight increased 2 months; again fatigued.

CASE 4.—EDWIN L.—BIRTHDAY, APRIL 4, 1887.

Date.	Age. Yrs.	Mos.	Normal Age for Ht. Yrs.	Mos.	Normal Age for Wt. Yrs.	Mos.	Net. Ht. mm.	Wt. lbs.
'97-1-4	9	9	11	9	9	9	1386	61.5
4-7	10	..	12	3	10	1	1405	63.5
'98-11-23	11	8	13	11	12	1	1514	75.5
'99-5-23	12	2	13	11	12	11	1511	82.8
8-12	12	4	14	10	12	10	1567	82.0
10-20	12	7	..	..	13	3	....	86.2
'00-2-19	12	11	..	..	13	11	....	93.0
6-25	13	3	16	5	14	2	1663	95.8
12-26	13	9	18	3	15	4	1723	109.8
'01-3-21	14	..	18	8	15	3	1748	109.2

Some fatigue; pulse rapid and irregular; heart area sl. increased; no valvular disease; rapid increase in stature; height and weight balance disturbed.

CASE 5.—BERTHA H.—BIRTHDAY, OCT. 6, 1888.

Date.	Age. Yrs.	Mos.	Normal Age for Ht. Yrs.	Mos.	Normal Age for Wt. Yrs.	Mos.	Net. Ht. mm.	Wt. lbs.
'98-3-19	9	5	11	3	12	..	1370	75.5
7-12	9	9	11	7	11	10	1390	74.0
9-4	9	11	11	8	12	..	1395	75.5
10-22	10	1	12	1	12	6	1420	79.9
11-25	10	2	12	4	12	6	1432	80.4
'99-1-7	10	3	12	4	12	6	1435	80.0
8-9	10	10	12	8	12	9	1456	83.0
'00-1-2	11	3	13	1	13	8	1485	93.4
'01-4-20	12	6	15	..	14	5	1568	102.3

Excessive stoop, with slight lateral curvature later; rapid pulse; fatigue; rapid and excessive growth in height and weight, especially height; unbalanced measurements. Improved under rest, massage, and shoulder braces. Much of the last increase in height is due to greater erectness.

CASE 6.—JOHN K. M.—BIRTHDAY, JULY 1, 1886.

Date.	Age. Yrs.	Mos.	Normal Age for Ht. Yrs.	Mos.	Normal Age for Wt. Yrs.	Mos.	Net. Ht. mm.	Wt. lbs.
'00-2-3	13	7	18	7	16	6	1740	121.8
3-10	13	8	..	..	16	2	1750	119.0
4-7	13	9	..	..	16	7	1756	123.3
6-12	13	11	..	..	16	1	1772	118.3
9-21	14	3	..	..	17	8	1796	132.0
'01-2-12	14	7	..	..	..	..	1818	142.3

Excessive height and weight, and unbalanced height and weight; shoulders badly stooped; pulse irregular. Improved under rest and shoulder braces. Hereditary tendency to great stature.

CASE 7.—ELSIE K.—BIRTHDAY, NOV. 10, 1884.

Date.	Age. Yrs.	Mos.	Normal Age for Ht. Yrs.	Mos.	Normal Age for Wt. Yrs.	Mos.	Net. Ht. mm.	Wt. lbs.
'97-12-8	13	1	12	7	11	10	1449	74.3
12-23	13	1	..	..	12	..	....	75.4
'98-1-27	13	3	..	..	12	3	....	78.1
3-5	13	4	..	..	12	4	....	79.2
10-1	13	11	..	..	12	6	....	80.5
'00-9-29	15	11	*		14	4	1601	102.3
'01-2-5	16	3	*		..	..	1612	98.5

* Above highest normal.

Subnormal height and weight, with excessive school work; fatigue. Taken from school, '97-12-8; returned to school, '98-9-5, in excellent condition; '01-2-5, shows work of first year in high school is beginning to drag on her.

CASE 8.—DAVID I.—BIRTHDAY, MAY 4, 1887.

Date.	Age. Yrs.	Mos.	Normal Age for Ht. Yrs.	Mos.	Normal Age for Wt. Yrs.	Mos.	Net. Ht. mm.	Wt. lbs.
'00-10-20	13	6	15	1	14	6	1587	99.3
12-22	13	8	15	4	15	..	1602	105.0
'01-5-4	14	..	15	11	15	4	1635	110.4

A magnificent fellow, height and weight above normal, but balanced, and not increasing beyond the capacity of his nutritive organs and heart. No functional disturbance of any kind. Prescribed golf, baseball, and tennis. Is the stuff of which good athletes are made.

The following conclusions are offered:

1. There is an exaltation of life processes at the pubertal period which finds its expression not only in an increased rate of growth, but also in the development of physical power. This exaltation is preceded by a period of relative quiescence. In the sexes this exaltation differs in that it commences earlier and has a shorter duration in girls than in boys; moreover, it is more marked in girls than in boys in weight and stature, but less in measurements involving physical power.

2. Puberty is also a period of great individualization, as indicated by the great normal range of physical measurements at this period.

3. The range of physical measurements at all ages in childhood, including puberty, is distributed uniformly above and below the line of average measurement.

4. At puberty mortality is low and morbidity is high.

5. Neuroses, psychoses, neurasthenias, cardiopathies, deformities and anemias are the principal morbid manifestations of the physical, intellectual and emotional turmoil which characterizes puberty.

6. The great range at puberty of the measurements of the physical features of the child expresses the condition which permits the existence in individual children of unusual lack of balance in physical measurements, or maladjustment of physical features.

7. Unbalanced physical development is an important factor in the production of morbid manifestations. It is operative throughout the developmental period of life. It occurs with greatest frequency at puberty, and it there finds its most marked expressions. It is found associated, in a causal relation, with most of the morbid manifestations of puberty, particularly disturbed heart action, dilatation of the heart, fatigue, anemia, and some deformities, such as round shoulders and scoliosis, as well as many of the neuroses of the period.

TABLE I. NORMS—BY AVERAGES.

BOYS.

Age.	Number Examined.	Standing Height. Millimeters.	Sitting Height. Millimeters.	Weight with Clothing. Kilograms.	Work on Ergograph. Kg.-Cm.	Grip of Right Hand. Kilograms.	Grip of Left Hand. Kilograms.	Vital Capacity. Cubic Centimeters.
4-6-13	41	1012	583	16.984	.....	5.50	5.08	736
5-7-14	70	1076	612	18.402	82.1	7.80	7.12	930
6-6- 6	227	1133	636	20.716	105.4	10.	9.32	1098
7-5-27	230	1183	658	22.535	139.2	11.50	10.91	1240
8-5-21	255	1234	677	25.022	168.2	13.27	12.40	1388
9-6- 4	228	1289	699	27.616	205.6	15.39	14.54	1549
10-6- 2	254	1330	713	29.837	235.	17.68	16.66	1659
11-5-17	228	1370	729	32.519	267.7	19.94	18.72	1799
12-5-23	256	1418	747	35.626	297.8	22.40	20.58	1956
13-5-14	230	1488	777	40.276	357.2	26.26	24.23	2246
14-5-20	250	1546	806	44.786	423.8	30.29	27.94	2527
15-5-25	205	1613	837	50.994	513.5	36.30	33.65	2858
16-5-15	146	1665	871	55.219	584.7	42.12	38.82	3363
17-5-18	92	1690	891	59.243	651.4	46.99	42.74	3570
18-4-27	40	1731	914	62.858	700.9	51.04	46.75	3701
19-4-18	23	1721	911	64.326	733.4	54.11	49.33	3872
20-5-12	8	1741	923	68.294	737.8	56.	48.50	3788
21-3-14	5	1704	911	63.955	727.4	52.	47.40	3770

GIRLS.

4-7-10	36	1008	585	16.342	.....	5.64	5.17	754
5-7- 2	81	1065	602	17.972	62.2	7.23	6.58	855
6-6- 8	204	1126	629	19.968	98.3	9.15	8.52	1008
7-6-15	236	1185	653	22.115	109.5	10.71	10.06	1121
8-6- 1	232	1228	674	23.995	142.5	11.67	10.96	1215
9-6- 7	221	1278	692	26.540	171.4	13.89	13.01	1360
10-5-15	240	1322	708	28.969	190.1	15.37	14.40	1456
11-5-16	223	1381	735	32.132	221.7	17.57	16.50	1587
12-5-15	247	1441	762	36.326	245.9	20.09	18.88	1729
13-6-13	255	1513	797	41.629	294.5	23.60	21.51	1924
14-6-13	301	1564	826	47.181	344.2	26.19	24.11	2117
15-6- 1	379	1574	840	49.345	356.5	27.92	25.81	2225
16-6- 0	354	1592	851	51.964	397.3	29.50	27.31	2306
17-5-10	251	1597	853	52.761	370.1	29.62	27.11	2304
18-4-25	137	1595	857	53.015	381.6	29.84	27.76	2351
19-5- 4	48	1599	855	54.600	416.8	31.21	28.85	2441
20-4-12	22	1588	848	54.033	363.3	29.96	27.45	2348
21-5- 8	4	1583	862	54.763	506.9	32.19	29.31	2250

TABLE II. BIRTHDAY NORMS.

AGE.	Standing Height. Millimeters.	Sitting Height. Millimeters.	Weight with Clothing. Kilograms.	Work on Ergograph. Kg.-Cm.	Grip of Right Hand. Kilograms.	Grip of Left Hand. Kilograms.	Vital Capacity. Cubic Centimeters.
BOYS.							
6-0	1106.9	624.0	19.738	92.86	9.21	8.48	1023
6-6	1132.5	635.4	20.675	104.79	9.97	9.29	1096
7-0	1158.2	646.7	21.613	122.12	10.74	10.11	1168
7-6	1183.9	657.8	22.550	139.45	11.51	10.92	1241
8-0	1209.3	667.5	23.817	154.17	12.41	11.67	1316
8-6	1234.8	677.2	25.083	168.89	13.31	12.43	1392
9-0	1261.4	687.9	26.336	187.07	14.34	13.47	1469
9-6	1288.0	698.5	27.589	205.24	15.37	14.51	1547
10-0	1309.1	705.6	28.707	220.03	16.52	15.59	1603
10-6	1330.3	712.6	29.825	234.82	17.67	16.66	1659
11-0	1351.1	721.0	31.223	251.86	18.85	17.72	1732
11-6	1371.9	729.3	32.619	268.89	20.03	18.80	1806
12-0	1395.4	738.0	34.151	283.83	21.24	19.71	1883
12-6	1418.9	747.0	35.684	298.75	22.45	20.62	1960
13-0	1455.4	762.4	38.084	329.21	24.44	22.51	2108
13-6	1490.9	777.9	40.485	359.69	26.43	24.40	2257
14-0	1519.2	792.1	42.696	392.62	28.42	26.22	2395
14-6	1547.4	806.4	44.908	425.55	30.40	28.04	2533
15-0	1580.7	821.8	47.993	470.13	33.39	30.88	2697
15-6	1614.1	836.8	51.078	514.72	36.38	33.73	2860
16-0	1640.3	854.3	53.238	551.22	39.37	36.39	3120
16-6	1666.5	871.7	55.398	587.73	42.35	39.04	3380
17-0	1678.5	881.6	57.384	620.64	44.74	40.96	3483
17-6	1690.4	891.4	59.371	653.53	47.14	42.87	3586
18-0	1712.3	903.0	61.288	679.73	49.28	45.01	3655
18-6	1734.1	914.6	63.204	705.82	51.43	47.16	3725
GIRLS.							
6-0	1096.6	617.2	18.870	87.79	8.36	7.74	950
6-6	1125.1	629.0	19.922	97.90	9.12	8.49	1006
7-0	1153.7	640.7	20.974	108.00	9.88	9.24	1061
7-6	1182.2	652.5	22.026	118.10	10.65	9.99	1117
8-0	1204.9	663.4	23.010	130.24	11.16	10.48	1165
8-6	1227.5	674.3	23.994	142.38	11.67	10.96	1214
9-0	1252.4	683.2	25.257	156.73	12.77	11.97	1286
9-6	1277.4	692.1	26.520	171.08	13.88	12.99	1358
10-0	1300.7	700.5	27.795	180.98	14.65	13.72	1409
10-6	1324.1	708.9	29.072	190.88	15.43	14.46	1460
11-0	1353.5	722.3	30.662	206.90	16.54	15.52	1526
11-6	1383.0	735.8	32.250	222.92	17.65	16.58	1592
12-0	1413.1	749.3	34.373	234.92	18.92	17.78	1664
12-6	1443.2	762.9	36.495	246.92	20.19	18.97	1736
13-0	1476.8	779.1	38.974	269.89	21.84	20.39	1827
13-6	1510.4	795.4	41.454	292.86	23.49	21.80	1918
14-0	1536.4	809.9	44.219	318.12	24.79	22.92	2014
14-6	1562.4	824.3	46.983	343.38	26.10	24.03	2111
15-0	1568.3	832.1	48.161	349.83	27.00	24.92	2168
15-6	1574.2	839.9	49.339	356.29	27.91	25.80	2225
16-0	1583.0	845.4	50.652	361.10	28.70	26.56	2266
16-6	1591.8	850.9	51.964	365.92	29.50	27.31	2306
17-0	1592.6	852.0	52.386	370.74	29.56	27.43	2319
17-6	1593.4	853.0	52.807	375.55	29.63	27.55	2331
18-0	1594.2	855.1	52.923	380.37	29.75	27.66	2343
18-6	1595.0	857.2	53.039	385.19	29.87	27.77	2355

TABLE III.

AVERAGE MONTHLY INCREMENT OF BIRTHDAY NORMS.

AGE.	Standing Height. Millimeters.	Sitting Height. Millimeters.	Weight with Clothing. Kilograms.	Work on Ergograph Kilogram-Centimeters.	Grip of Right Hand. Kilograms.	Grip of Left Hand. Kilograms.	Vital Capacity. Cubic Centimeters.
BOYS.							
6½ to 7½	4.3	1.8	.156	2.89	.13	.14	12
7½ to 8½	4.2	1.6	.211	2.45	.15	.13	13
8½ to 9½	4.4	1.7	.209	3.03	.17	.17	13
9½ to 10½	3.5	1.2	.187	2.46	.19	.18	9
10½ to 11½	3.5	1.4	.233	2.84	.19	.18	12
11½ to 12½	3.9	1.5	.256	2.50	.20	.15	13
12½ to 13½	6.1	2.6	.400	5.08	.33	.32	25
13½ to 14½	4.7	2.4	.368	5.49	.33	.30	23
14½ to 15½	5.6	2.5	.514	7.43	.50	.48	27
15½ to 16½	4.4	2.9	.360	6.08	.50	.44	43
16½ to 17½	2.6	1.6	.331	4.49	.40	.32	17
17½ to 18½	3.7	1.9	.320	4.34	.36	.36	11
GIRLS.							
6½ to 7½	4.7	2.0	.175	1.68	.12	.12	9
7½ to 8½	3.8	1.8	.164	2.02	.09	.08	8
8½ to 9½	4.2	1.5	.211	2.39	.18	.17	12
9½ to 10½	3.9	1.4	.213	1.65	.13	.12	8
10½ to 11½	4.9	2.3	.265	2.67	.18	.18	11
11½ to 12½	5.0	2.2	.353	2.00	.21	.20	12
12½ to 13½	5.6	2.7	.413	3.83	.28	.23	16
13½ to 14½	4.3	2.4	.461	4.21	.22	.19	16
14½ to 15½	1.0	1.3	.196	1.08	.15	.15	10
15½ to 16½	1.5	.9	.219	.80	.13	.12	7
16½ to 17½	.1	.2	.070	.80	.01	.02	2
17½ to 18½	.1	.3	.019	.80	.02	.02	2

TABLE IV. DISTRIBUTION INTO PERCENTILE GROUPS—Height.

AGE	Minim.	10 Per Ct.	25 Per Ct.	75 Per Ct.	90 Per Ct.	Maxim.
	Cm.	Cm.	Cm.	Cm.	Cm.	Cm.
BOYS.						
4	86	96	98	104	107	116
5	96	103	104	110.5	113.5	118
6	101	107	110	116	119.5	125
7	103	112	115	121.5	124.5	132
8	109	116.5	120	127	130	138
9	107	121	125	133	136.5	146
10	116	125.5	129	137.5	141.5	147
11	121	129	133	141	145	159
12	125	132.5	137	146	150.5	164
13	131	140	143.5	154	159	168
14	130	143.5	148.5	160	167.5	178
15	132	151	155.5	166.5	171.5	179
16	142	155.5	161.5	172.5	175.5	185
17	137	160.5	165.5	174	178.5	182
18	161	166.5	168	177	181.5	183
19	148	163	165.5	178	184	197
GIRLS.						
4	92	96	98	104	106	110
5	93	100	102	111	114	118
6	95	106.5	109.5	116	118.5	128
7	103	111	114.5	121.5	124.5	133
8	105	116	119	126.5	129	140
9	115	120.5	124	132	135.5	143
10	115	125	128.5	136	140	147
11	119	129.5	134	142.5	146.5	155
12	121	134	139	149	153.5	163
13	129	140.5	145	155	159	170
14	126	147.5	151.5	159.5	163	169
15	140	150	153	160	163.5	172
16	144	150.5	154.5	162	165.5	177
17	144	152	155	162	165.5	177
18	137	151.5	155	162.5	166	176
19	143	152	156	163	167	169

DISTRIBUTION INTO PERCENTILE GROUPS—Weight.

AGE.	Minim.	10 Per Ct.	25 Per Ct.	75 Per Ct.	90 Per Ct.	Maxim.
	Kg.	Kg.	Kg.	Kg.	Kg.	Kg.
BOYS.						
4	12	14.75	15.5	18	20.25	21
5	13	16.25	17	19.5	21	26
6	15	18.5	19.5	22.25	23.75	27
7	17	20	21	24.5	25.75	32
8	17	21.75	23	26.5	28.75	62
9	20	23.5	25.25	29.5	32	38
10	19	25.75	27.5	31.75	34.5	50
11	23	27.25	29.5	35	37.75	49
12	25	29.5	32.25	38.25	42.25	54
13	28	33.5	36	43.5	48	72
14	29	35	39	49	55	68
15	30	40.5	45.5	56	61.5	97
16	34	46	50	59.5	65.5	105
17	34	47	54.5	65.5	69.5	81
18	45	54.5	57	66	71	83
19	47	52	57	69	74	98
GIRLS.						
4	12	14	15.5	17.5	19.25	21
5	13	15.25	16.5	19.25	21.25	23
6	13	17	18.25	21.5	23.25	27
7	15	18.50	20	23.5	26	31
8	17	20.5	22	25.5	27.5	35
9	19	22.75	24	28.5	31	41
10	19	24	26	31.25	33.5	50
11	21	26.5	29	34.75	38	50
12	21	29	31.75	40.5	44	69
13	24	33	36.5	46.5	52	69
14	28	38	42.5	51.75	56	74
15	30	41.5	44.5	53	58.25	81
16	33	44	47.5	56	60.75	91
17	38	44.5	48.25	56	61.5	75
18	35	46.25	49	56.5	59.5	80
19	38	49.5	51	57	62.5	88
20	30	46	48.5	59.5	66	71

DISTRIBUTION INTO PERCENTILE GROUPS—Right Hand Grip.

AGE	Minim.	10 Per Ct.	25 Per Ct.	75 Per Ct.	90 Per Ct.	Maxim.
	Kg.	Kg.	Kg.	Kg.	Kg.	Kg.
BOYS.						
4	3	3.25	4	7.25	9	10.50
5	4	5.25	6	9.75	10.25	12
6	7	8.50	9.25	11.50	12.50	16
7	5	9.25	10.25	13.25	14.50	27
8	6	10	11.25	15.25	17.50	24
9	8	11.25	13.25	18.25	20.50	30
10	10	13.25	15.25	20.50	22.75	33
11	11	15.50	17.50	23	25.50	31
12	11	17.25	20	26	29	37
13	17	20.25	22.25	30.50	34.25	62
14	15	22	25	35.75	40.75	51
15	19.50	27	30.25	42	47.50	56
16	21	32.5	36.50	47.50	51.5	75
17	20	39	42	53.50	59	72
18	36	43.50	46.25	58	63	71
19	43	46.50	48	62	68	77
20	40	51	52	57.50	59	59
GIRLS.						
4	3	4	4.50	7	8.75	9
5	3	4.50	5.50	8.25	10	12
6	4	7	8.50	10.50	12	14
7	5	9	10	12.25	13.75	16
8	6	9	10.25	13.50	15.25	18
9	8	10.50	12.25	15.75	18.25	24
10	9	11.50	13	18	20.50	32
11	8	13.25	15.25	20.50	23	27
12	10	15.25	17.50	23.50	27.50	35

TABLE IV—(Continued).

DISTRIBUTION INTO PERCENTILE GROUPS—Right Hand Grip.

GIRLS—(Continued).

13	11	18	20.25	27.50	30.75	45
14	14.50	20	22.50	31	33.50	38
15	16.50	22	25	31.50	34.50	47
16	18	23.50	26.50	32.50	36	48
17	18	24	26.50	33	37	45
18	22	24.50	27	32.50	36.25	46
19	20	25	27.50	33.50	36.50	39
20	21	26	28.50	34	35.50	36

DISTRIBUTION INTO PERCENTILE GROUPS—Vital Capacity.

BOYS.

AGE.	Minim. Cu. cm.	10 Per Ct. Cu. cm.	25 Per Ct. Cu. cm.	75 Per Ct. Cu. cm.	90 Per Ct. Cu. cm.	Maxim. Cu. cm.
4	500	625	675	825	950	1050
5	500	775	850	1025	1150	1250
6	700	925	1000	1225	1325	1600
7	700	1025	1150	1375	1475	1800
8	800	1150	1250	1575	1750	2100
9	950	1300	1400	1750	1925	2200
10	900	1350	1450	1850	2050	2700
11	1100	1475	1600	2025	2200	3000
12	1150	1575	1750	2200	2400	3100
13	1600	1850	2000	2450	2800	4200
14	1100	1900	2175	2900	3350	4000
15	1400	2250	2450	3300	3575	4500
16	2000	2550	2950	3800	4300	5100
17	1800	2900	3260	4000	4350	5000
18	2400	3225	3425	4175	4700	5000
19	3000	3100	3500	4200	4800	5600
20	2200	2100	3300	4600	5000	5100

GIRLS.

4	600	675	725	825	850	900
5	600	725	800	975	1025	1100
6	600	800	900	1175	1300	1400
7	750	925	1000	1250	1350	1600
8	700	1000	1125	1350	1450	1800
9	900	1125	1225	1500	1650	2100
10	900	1225	1325	1600	1800	2100
11	1000	1325	1450	1800	1950	2300
12	800	1400	1550	1975	2150	3000
13	1100	1600	1750	2175	2400	3000
14	1350	1700	1925	2350	2675	3100
15	1450	1850	2000	2450	2675	3400
16	1350	1925	2100	2550	2750	3600
17	1250	1900	2075	2550	2800	3300
18	1500	1950	2150	2600	2800	3600
19	1700	2000	2200	2700	3000	3300
20	1300	1900	2200	2700	2825	2900

DISTRIBUTION INTO PERCENTILE GROUPS—Ergograph.

BOYS.

AGE.	Minim. Kg.-cm.	10 Per Ct. Kg.-cm.	25 Per Ct. Kg.-cm.	75 Per Ct. Kg.-cm.	90 Per Ct. Kg.-cm.	Maxim. Kg.-cm.
5	50	52.5	55	100	130	150
6	30	62.5	77.5	127.5	150	230
7	40	92.50	115	165	190	280
8	40	110	135	200	227.5	300
9	50	140	167.5	242.5	287.5	390
10	110	162.5	190	272.5	315	520
11	110	190	222.5	295	365	490
12	100	202.5	242.5	347.5	402.5	580
13	130	230	285	405	490	880
14	160	265	332.5	510	585	880
15	150	320	390	615	745	1040
16	260	410	470	680	800	1320
17	230	440	545	770	855	1110
18	380	560	600	790	905	1010
19	390	520	610	850	1040	1140

GIRLS.

5	20	30	45	70	90	100
6	30	60	75	117.5	142.5	200
7	40	75	95	145	170	280
8	30	90	112	170	195	280
9	50	115	137.5	202.5	230	430
10	40	125	155	225	260	600
11	70	150	175	260	305	390
12	70	165	195	285	350	650
13	80	185	225	355	430	570
14	90	215	227.5	405	480	660
15	100	230	290	415	480	690
16	120	232.5	305	442.5	530	840
17	150	230	292.5	430	520	640
18	130	240	500	450	510	820
19	160	270	340	480	575	870

TABLE V.

ANNUAL RATE OF INCREASE—BOYS.

Age.	Height at Beginning of Year. mm.	Amount of Gain. mm.	Per Cent. of Gain.
6 to 7	1106.9	51.3	4.63
7 to 8	1158.2	51.1	4.40
8 to 9	1209.3	52.1	4.30
9 to 10	1261.4	47.7	3.77
10 to 11	1309.1	42.0	3.20
11 to 12	1351.1	44.3	3.27
12 to 13	1395.4	60.0	4.29
13 to 14	1455.4	63.8	4.39
14 to 15	1519.2	61.5	4.04
15 to 16	1580.7	59.6	3.70
16 to 17	1640.3	38.2	2.32
17 to 18	1678.5	33.8	2.01

TABLE V—(Continued).

ANNUAL RATE OF INCREASE—BOYS.

Age.	Height Sitting at Beginning of Year. mm.	Amount of Gain. mm.	Per Cent. of Gain.
6 to 7	624.0	22.7	3.64
7 to 8	646.7	20.8	3.21
8 to 9	667.5	20.4	3.05
9 to 10	687.9	17.7	2.57
10 to 11	705.6	15.4	2.18
11 to 12	721.0	17.0	2.35
12 to 13	738.0	24.4	3.30
13 to 14	762.4	29.7	3.89
14 to 15	792.1	29.7	3.74
15 to 16	821.8	32.5	3.95
16 to 17	854.3	27.3	3.19
17 to 18	881.6	21.4	2.41

Age.	Weight at Beginning of Year. Kg.	Amount of Gain. Kg.	Per Cent. of Gain.
6 to 7	19.738	1.875	9.50
7 to 8	21.613	2.204	10.20
8 to 9	23.817	2.519	10.57
9 to 10	26.336	2.371	9.00
10 to 11	28.707	2.516	8.76
11 to 12	31.223	2.928	9.37
12 to 13	34.151	3.933	11.51
13 to 14	38.084	4.612	12.11
14 to 15	42.696	5.297	12.40
15 to 16	47.993	5.245	10.92
16 to 17	53.238	4.146	7.78
17 to 18	57.384	3.904	6.80

Age.	Ergograph at Beginning of Year. Kg.-cm.	Amount of Gain. Kg.-cm.	Per Cent. of Gain.
6 to 7	87.47	34.65	39.62
7 to 8	122.12	32.05	26.24
8 to 9	154.17	32.90	21.34
9 to 10	187.07	32.96	17.56
10 to 11	220.03	31.83	14.46
11 to 12	251.86	31.97	12.68
12 to 13	283.83	45.38	15.98
13 to 14	329.21	63.41	19.29
14 to 15	392.62	77.51	19.74
15 to 16	470.13	81.09	17.23
16 to 17	551.22	69.42	12.59
17 to 18	620.64	59.09	9.52

Age.	Right Hand Grip at Beginning of Year. Kg.	Amount of Gain. Kg.	Per Cent. of Gain.
6 to 7	9.21	1.53	16.61
7 to 8	10.74	1.67	15.55
8 to 9	12.41	1.93	15.55
9 to 10	14.34	2.18	15.20
10 to 11	16.52	2.33	14.10
11 to 12	18.85	2.39	12.67
12 to 13	21.24	3.20	15.06
13 to 14	24.44	3.98	16.28
14 to 15	28.42	4.97	17.44
15 to 16	33.39	5.98	17.90
16 to 17	39.37	5.37	13.38
17 to 18	44.14	4.54	10.14

Age.	Left Hand Grip at Beginning of Year. Kg.	Amount of Gain. Kg.	Per Cent. of Gain.
6 to 7	8.48	1.63	19.22
7 to 8	10.11	1.56	15.43
8 to 9	11.67	1.80	15.42
9 to 10	13.47	2.12	15.73
10 to 11	15.59	2.13	13.66
11 to 12	17.72	1.99	11.23
12 to 13	19.71	2.80	14.20
13 to 14	22.51	3.71	12.03
14 to 15	26.22	4.66	17.77
15 to 16	30.88	5.51	17.84
16 to 17	36.39	4.57	12.55
17 to 18	40.96	4.05	9.88

Age.	Vital Capacity at Beginning of Year. Cu. cm.	Amount of Gain. Cu. cm.	Per Cent. of Gain.
6 to 7	1023	145	14.17
7 to 8	1168	148	12.67
8 to 9	1316	153	11.62
9 to 10	1469	134	9.12
10 to 11	1603	129	8.04
11 to 12	1732	151	8.71
12 to 13	1883	225	11.95
13 to 14	2108	287	13.61
14 to 15	2395	302	12.60
15 to 16	2697	423	15.68
16 to 17	3120	363	11.63
17 to 18	3483	172	4.93

ANNUAL RATE OF INCREASE—GIRLS.

Age.	Height at Beginning of Year. mm.	Actual Gain. mm.	Per Cent. of Gain.
6 to 7	1096.6	57.1	5.20
7 to 8	1153.7	51.2	4.44
8 to 9	1204.9	47.5	3.94
9 to 10	1252.4	48.3	3.86

TABLE V—(Continued).

ANNUAL RATE OF INCREASE—GIRLS.

Age.	Height at Beginning of Year. mm.	Actual Gain. mm.	Per Cent. of Gain.
10 to 11	1300.7	52.8	4.06
11 to 12	1353.5	59.6	4.40
12 to 13	1413.1	63.7	4.51
13 to 14	1476.8	59.6	4.04
14 to 15	1536.4	31.9	2.08
15 to 16	1568.3	14.7	0.94
16 to 17	1583.0	9.6	0.61
17 to 18	1592.6	1.6	0.10

Age.	Height Sitting at Beginning of Year. mm.	Actual Gain. mm.	Per Cent. of Gain.
6 to 7	617.0	23.7	3.84
7 to 8	640.7	22.7	3.54
8 to 9	663.4	19.8	2.98
9 to 10	683.2	17.3	2.53
10 to 11	700.5	21.8	3.11
11 to 12	722.3	27.0	3.74
12 to 13	749.3	29.8	3.98
13 to 14	779.1	30.8	3.95
14 to 15	809.9	22.2	2.74
15 to 16	832.1	13.3	1.60
16 to 17	845.4	6.6	0.78
17 to 18	852.0	3.1	0.36

Age.	Weight at Beginning of Year. Kg.	Actual Gain. Kg.	Per Cent. of Gain.
6 to 7	18.870	2.104	11.15
7 to 8	20.974	2.036	9.71
8 to 9	23.010	2.247	9.77
9 to 10	25.257	2.538	10.05
10 to 11	27.795	2.867	10.31
11 to 12	30.662	3.711	12.10
12 to 13	34.373	4.601	13.38
13 to 14	38.974	5.245	13.46
14 to 15	44.219	3.942	8.91
15 to 16	48.161	2.491	5.17
16 to 17	50.652	1.734	3.42
17 to 18	52.386	0.537	1.03

Age.	Ergograph at Beginning of Year. Kg.-cm.	Actual Gain. Kg.-cm.	Per Cent. of Gain.
6 to 7	87.79	20.21	23.02
7 to 8	108.00	22.24	20.59
8 to 9	130.24	26.49	20.34
9 to 10	156.73	24.25	15.47
10 to 11	180.98	25.92	14.32
11 to 12	206.90	28.02	13.55
12 to 13	234.92	34.97	14.89
13 to 14	269.89	48.23	17.87
14 to 15	318.12	31.71	9.97
15 to 16	349.83	11.27	3.22
16 to 17	361.10	9.64	2.67
17 to 18	370.74	9.63	2.60

Age.	Right Hand Grip at Beginning of Year. Kg.	Amount of Gain. Kg.	Per Cent. of Gain.
6 to 7	8.36	1.52	18.18
7 to 8	9.88	1.28	12.90
8 to 9	11.16	1.61	14.43
9 to 10	12.77	1.78	13.94
10 to 11	14.65	1.89	12.95
11 to 12	16.54	2.38	14.39
12 to 13	18.92	2.92	15.43
13 to 14	21.84	2.95	13.52
14 to 15	24.79	2.21	8.91
15 to 16	27.00	1.70	6.30
16 to 17	28.70	0.86	3.00
17 to 18	29.56	0.19	0.60

Age.	Left Hand Grip at Beginning of Year. Kg.	Amount of Gain. Kg.	Per Cent. of Gain.
6 to 7	7.74	1.50	19.37
7 to 8	9.24	1.24	13.42
8 to 9	10.48	1.49	14.21
9 to 10	11.97	1.75	14.62
10 to 11	13.72	1.80	13.11
11 to 12	15.52	2.26	14.56
12 to 13	17.78	2.61	14.66
13 to 14	20.39	2.53	12.40
14 to 15	22.92	2.00	8.72
15 to 16	24.92	1.64	6.58
16 to 17	26.56	0.87	3.27
17 to 18	27.43	0.23	0.85

Age.	Vital Capacity at Beginning of Year. Cu. cm.	Amount of Gain. Cu. cm.	Per Cent. of Gain.
6 to 7	950	111	11.68
7 to 8	1061	104	9.80
8 to 9	1165	121	10.39
9 to 10	1286	123	9.56
10 to 11	1409	117	8.30
11 to 12	1526	138	9.04
12 to 13	1664	163	9.79
13 to 14	1827	187	10.24
14 to 15	2014	154	7.64
15 to 16	2168	98	4.52
16 to 17	2266	53	2.34
17 to 18	2319	24	1.03

TABLE VI.

ABSOLUTE RANGE OF MEASUREMENTS BETWEEN PERCENTILE GROUPS.—BOYS.

Age.	Height. Cm.				Weight. Kg.			
	10 per cent. to average.	Average to 90 per cent.	10 to 90 per cent.	25 to 75 per cent.	10 per cent. to average.	Average to 90 per cent.	10 to 90 per cent.	25 to 75 per cent.
4	5.2	5.8	11.0	6.0	2.23	3.27	5.50	2.50
5	4.6	5.9	10.5	6.5	2.15	2.60	4.75	2.50
6	6.3	6.2	12.5	6.0	2.22	3.03	5.25	2.75
7	6.3	6.2	12.5	6.5	2.53	3.22	5.75	3.50
8	6.9	6.6	13.5	7.0	3.27	3.73	7.00	3.50
9	7.9	7.6	15.5	8.0	4.12	4.38	8.50	4.25
10	7.5	8.5	16.0	8.5	4.09	4.66	8.75	4.25
11	8.0	8.0	16.0	8.5	5.27	5.23	10.50	5.50
12	9.3	8.7	18.0	9.0	6.13	6.62	12.75	6.00
13	8.8	10.2	19.0	10.5	6.78	7.72	14.50	7.50
14	11.1	12.9	24.0	11.5	9.79	10.21	20.00	10.00
15	10.3	10.2	20.5	11.0	10.49	10.51	21.00	10.50
16	11.0	9.0	20.0	11.0	9.22	10.28	19.50	9.50
17	8.5	9.5	18.0	8.5	12.24	10.26	22.50	11.00
18	7.1	8.4	15.0	9.0	8.36	8.14	16.50	9.00

TABLE VI.—(CONTINUED.)

ABSOLUTE RANGE OF MEASUREMENTS BETWEEN PERCENTILE GROUPS.—BOYS.

Age.	Grip of right hand. Kg.				Vital capacity. Cc.			
	10 per cent. to average.	Average to 90 per cent.	10 to 90 per cent.	25 to 75 per cent.	10 per cent. to average	Average to 90 per cent.	10 to 90 per cent.	25 to 75 per cent.
4	2.25	3.50	5.75	3.25	111	214	325	150
5	2.55	2.45	5.00	3.75	155	220	375	175
6	1.50	2.50	4.00	2.25	173	227	400	225
7	2.25	3.00	5.25	3.00	215	235	450	225
8	3.27	4.23	7.50	4.00	238	362	600	325
9	4.14	5.11	9.25	5.00	249	376	625	350
10	4.43	5.07	9.50	5.25	309	391	700	400
11	4.44	5.56	10.00	5.50	324	401	725	425
12	5.15	6.60	11.75	6.00	381	444	825	450
13	6.01	7.99	14.00	8.25	396	554	950	450
14	8.29	10.46	18.75	10.75	627	823	1450	725
15	9.30	11.20	20.50	11.75	608	717	1325	850
16	9.62	9.38	19.00	11.00	813	937	1750	850
17	7.99	12.01	20.00	11.50	670	780	1450	800
18	7.54	11.96	19.50	11.75	476	999	1475	750

TABLE VI.—(CONTINUED.)

ABSOLUTE RANGE OF MEASUREMENTS BETWEEN PERCENTILE GROUPS.—BOYS.

Age.	Endurance as measured by ergograph. Kg. cm.			
	10 per cent. to average.	Average to 90 per cent.	10 to 90 per cent.	25 to 75 per cent.
4				
5	29.6	47.9	77.5	45.0
6	42.9	44.6	87.5	50.0
7	46.7	50.8	97.5	50.0
8	58.2	59.3	117.5	65.0
9	65.6	81.9	147.5	75.0
10	72.5	80.0	152.5	82.5
11	77.7	97.3	175.0	82.5
12	95.3	104.7	200.0	105.0
13	127.2	132.8	260.0	120.0
14	158.8	161.2	320.0	177.5
15	193.5	231.5	425.0	225.0
16	174.7	215.3	390.0	210.0
17	201.4	203.6	405.0	225.0
18	140.9	204.1	345.0	190.0

TABLE VII.

ABSOLUTE RANGE OF MEASUREMENTS BETWEEN PERCENTILE GROUPS.—GIRLS.

Age.	Height. Cm.				Weight. Kg.			
	10 per cent. to average.	Average to 90 per cent.	10 to 90 per cent.	25 to 75 per cent.	10 per cent. to average.	Average to 90 per cent.	10 to 90 per cent.	25 to 75 per cent.
4	4.8	5.2	10.0	6.0	2.34	2.91	5.25	2.00
5	6.5	7.5	14.0	9.0	2.72	3.28	6.00	3.25
6	6.1	5.9	12.0	6.5	2.97	3.28	6.25	3.25
7	7.5	6.0	13.5	7.0	3.62	3.88	7.50	3.50
8	6.8	6.2	13.0	7.5	3.49	3.51	7.00	3.50
9	7.3	7.7	15.0	8.0	3.79	4.46	8.25	4.50
10	7.2	7.8	15.0	7.5	4.97	4.53	9.50	5.25
11	8.6	8.4	17.0	8.5	5.63	5.87	11.50	5.75

TABLE VII—(Continued).

12	10.1	9.4	19.5	10.0	7.33	7.67	15.00	8.75
13	10.8	7.7	18.5	10.0	8.63	11.37	19.00	10.00
14	8.9	6.6	15.5	8.0	9.18	8.82	18.00	9.25
15	7.4	6.1	13.5	7.0	7.84	8.91	16.75	8.50
16	8.7	6.3	15.0	7.5	7.96	8.79	16.75	8.50
17	7.7	5.8	13.5	7.0	8.26	8.74	17.00	7.75
18	8.0	6.5	14.5	7.5	6.77	6.48	13.25	7.50

TABLE VII.—(CONTINUED.)
ABSOLUTE RANGE OF MEASUREMENTS BETWEEN PERCENTILE GROUPS.—GIRLS.

Age.	Grip of right hand. Kg.				Vital capacity. Cc.			
	10 per cent. to average.	Average to 90 per cent.	10 to 90 per cent.	25 to 75 per cent.	10 per cent. to average.	Average to 90 per cent.	10 to 90 per cent.	25 to 75 per cent.
4	1.64	3.11	4.75	2.50	79	96	175	100
5	2.73	2.77	5.50	2.75	130	170	300	175
6	2.15	2.85	5.00	2.00	208	292	500	275
7	1.71	3.04	4.75	2.25	196	229	425	250
8	2.67	3.58	6.25	3.25	215	235	450	225
9	3.39	4.36	7.75	3.50	235	290	525	275
10	3.87	5.13	9.00	5.00	231	344	575	275
11	4.32	5.43	9.75	5.25	262	363	625	350
12	4.84	7.41	12.25	6.00	329	421	750	425
13	5.60	7.15	12.75	7.25	324	476	800	425
14	6.19	7.31	13.50	8.50	417	558	975	425
15	5.92	6.58	12.50	6.50	375	450	825	450
16	6.00	6.50	12.50	6.00	381	444	825	450
17	5.62	7.38	13.00	6.50	404	496	900	475
18	5.34	6.41	11.75	5.50	401	449	850	450

TABLE VII.—(CONTINUED.)
ABSOLUTE RANGE OF MEASUREMENTS BETWEEN PERCENTILE GROUPS.—GIRLS.

Age.	Endurance as measured by ergograph. Kg. cm.			
	10 per cent to average.	Average to 90 per cent.	10 to 90 per cent.	25 to 75 per cent.
4	...	...	...	...
5	32.2	27.8	60.0	25.0
6	38.3	44.2	82.5	42.5
7	34.5	60.5	95.0	50.0
8	52.5	52.5	105.0	58.0
9	56.4	58.6	115.0	65.0
10	65.1	69.9	135.0	70.0
11	71.7	83.3	155.0	85.0
12	80.9	104.1	185.0	90.0
13	109.5	135.5	245.0	130.0
14	129.2	135.8	265.0	177.5
15	126.5	123.5	250.0	125.0
16	134.8	162.7	297.5	137.5
17	140.1	149.9	290.0	137.5
18	141.6	128.4	270.0	150.0

Clinical Reports.

REDUCTION OF DISLOCATION OF THE SHOULDER BY CONTINUOUS TRACTION.

JOHN GLENDON SHELDON, M.D.
Surgeon-in-Chief to the Montrose Hospital; Consulting Surgeon to the Telluride Hospital.
TELLURIDE, COLO.

Dr. L. A. Stimson[1] described a method of reducing recent shoulder and hip dislocations, which he used with very gratifying results. His method appealed to me as being scientific and practical; hence, I have made use of the principle in all recent cases of dislocation of those parts coming under my care since his article was published. The results were so satisfactory that I feel justified in noting them.

The principle on which reduction of dislocations of the shoulder by continuous traction depends, is that the muscles are relaxed and rendered passive, thus offering no resistance to the movements of the humerus. There remains, then, only the ligaments and the atmospheric pressure to prevent reduction. The ligaments of the shoulder are so arranged that they offer no resistance to it and the looseness of the capsule is so great that the arm will fall about an inch from the scapula when the muscles are dissected from the capsular ligament and an opening is made in it to remove the atmospheric pressure. From the foregoing, it is evident that when the resistance offered by the muscles and by the atmospheric pressure is overcome, which is done by the slow, continuous traction on the arm, the capsular ligament allows the articular surfaces of the scapula and head of the humerus to be separated to such an extent that they become placed opposite each other, and when the traction is removed they return to their proper places—reduction having been accomplished.

Technique of Reducing the Dislocation.—The method of reducing the dislocation, as recommended by Stimson, is as follows: Place the dislocated arm through a 6-inch hole, made 18 inches from one end, in a canvas stretcher, the patient lying on the stretcher in a lateral position; a ten-pound weight is then attached to his wrist. In all cases tried, reduction was completed in six minutes.

Hofmeister applied the same principle and obtained equally good results, by using a complicated set of pulleys. In my first cases, the following method was used: The patient was

placed on an ordinary dining table, in the lateral position; the dislocated arm allowed to hang through an opening made by removing one of the leaves; the patient supported by pillows and blankets, and the necessary number of flatirons attached to the wrist or elbow. In six cases treated by this method, reduction was accomplished at the end of six minutes in each of them. In some of the cases, at least, the reduction appeared to be effected in a shorter period; but this was not proven, as each time the weight was attached for the six minutes.

It occurred to me that carefully applied muscular force could be substituted for the weights, and, therefore, in treating the next dislocation of the shoulder, I pulled gently and steadily on the arm, held at right angles to the body, the patient relaxing his muscles. This he did, willingly, for he found that the traction was painless. After I had pulled gently and continuously for about two minutes, I felt the arm twist slightly, and, on relaxing my hold, found the dislocation reduced. I have tried this method in 7 cases and have succeeded in reducing the dislocations in all of them. In no case was I obliged to apply the traction longer than four minutes, and in most instances, a shorter period was sufficient.

The advisability of employing this method of reducing shoulder dislocation may be considered from two standpoints.

1. An Easy Method of Reducing Dislocations of the Shoulder and Hip, N. Y. Med. Rec., March 3, 1900.

it offers the following advantages: 1, It has not failed to reduce a dislocation in any case. Stimson tried it on 10 cases, and I have reduced 13 cases; 6 by the use of weights and 7 by substituting muscular force for them; 2, in no case has the patient complained of the reduction being painful; 3, there has been no evidence of injury to the soft parts in this method of treatment, and it is difficult to understand how such could occur when so little force is used; 4, anesthesia is unnecessary, and 5, I have succeeded in reducing dislocations by this method where other methods have failed.

The disadvantages are, thus far in my experience, none. Of course, it is possible that some cases of shoulder dislocations can not be reduced by the method, but I have not found them. Traction on the arm, at right angles to the body, is advised against by most writers, on account of the danger of injuring the vessels and nerves. I do not think the objection holds in cases where such mild traction is used as is advised in the method of treatment outlined in the foregoing. I can see no reason why the method should not be tried in reducing shoulder dislocations, and judging from the results I have obtained, though the cases are few in number, it is the best method for treating recent cases.

BABE WITH ONE LUNG.

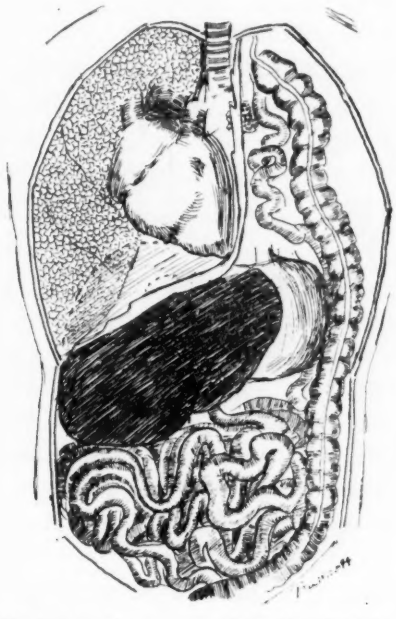
RALPH HANSON, M.D.
LEWISTOWN, ILL.

Mrs. W. G. M. was delivered after a normal labor of a seven-pound female child on October 27, 1900, at about the thirty-sixth week of gestation. It breathed immediately, but not satisfactorily, the respirations being shallow and at too long intervals. There was no cry; the color was pale. The pulse in the cord was strong so the child was removed from the mother, and all usual efforts made to establish normal respiration, but without success. The respirations became less frequent and more shallow and ceased entirely in about fifteen minutes. The heart continued beating for several minutes longer.

In working with the child the heart-beat was discovered to be on the right side and was easily felt, and the impulse was visible to both myself and the nurse. I thought I had a case of transposition of the viscera, and asked for permission to hold a postmortem examination, which was granted.

On opening the chest the heart was found on the right side, just to the right of the sternum and base under right nipple. The right lung was normal in shape, but rather smaller than usual. The left lung was rudimentary in the extreme and looked like a bunch of millet seed not longer than a buckshot, the bronchus being simply a cord about one-twelfth of an inch in length. The diaphragm was normal on the right side, but was only a small band of muscular fibers about one-eighth of an inch in width along the border of the ribs. There was nothing on the posterior wall to indicate where it should have been, this wall being perfectly smooth from apex to pelvis.

The liver and stomach were normal in size and position. The small intestines were as usual, except the lower portion turned to the left and ascended behind the stomach into the left chest cavity at the apex of which it entered the cecum. The vermi-



form appendix lay in the apex against the clavicle. The colon passed directly down from this point to the sigmoid flexure. The pelvic organs were normal.

History of the Clinical Thermometer.—*Janus* quotes from Daniels' history of the thermometer at the sick bed, recently published in the *Tijdschr. v. Geneesk*, that Currie, of Edinburgh, employed a thermometer in treating typhoid patients with the cold douche, as early as 1797. His example was not followed by others, and he was even held up to ridicule by his German contemporaries as an "instance of the sad condition into which English medicine has fallen." To Sanctorius of Padua, professor of medicine and author of the famous book "De Statica Medica," belongs the first clinical application of the thermometer. He invented a kind of air-thermometer, open at one end. After being held by the patient the attached tube was plunged into cold water and the height of the column of water was recorded. The great Dutch physician Boerhaave taught the importance of the temperature in disease, and used the thermometer. Van Swieten, one of his pupils, recommended Fahrenheit's thermometer for the purpose, but to another pupil, De Haen—1704 to 1776—is due the honor of having introduced the thermometer into current use at the bedside. It was not till 1835 that thermometry began to make real progress, and not till 1850 to 1870 that it came into general use, mostly due to Traube and Wunderlich's studies on temperature in disease.

Hygienic Advantages of Evening Dress.—An eminent English physician states that the evening dress suit is a distinct hygienic gain. It compels the changing of the clothes, the æration of the body. The wearer feels obliged to stand more erect, to throw out his chest and thus breathe deeper. In short, he contends that a change from the business to the dress suit every evening will add years to one's life.

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THE ATTEMPTED MURDER OF THE PRESIDENT.

Our country has been called again to bow in sorrow and, at the same time, in humiliation. In sorrow, because an honest, laborious, well-meaning patriotic public servant has been murderously assaulted while doing his duty, and this without any cause whatsoever. In humiliation, because here, in this land of free speech, of free press, and of democratic government, where the poorest has as much to say who shall be ruler as the most wealthy; here, where the ruler is as a brother to the poorest citizen, where despotism is unknown and liberty in its broadest sense is the heritage and the right of all; here the anarchistic assassin plies his accursed work and excuses his deed by calling it a righteous one.

With feelings of sorrow and abhorrence, mingled with rage, the American people have again stood in the presence of their chief magistrate lying prostrate from a bullet sent by the hand of a being in the form of a man, but who, thank God, bears a name that can not be mistaken for that of an American.

Murder most wanton, murder most foul, murder absolutely unprovoked, yet deliberate, predetermined, and carried out with the tactics of a snake, was attempted. And why? Because William McKinley stood for law and order; because he was the representative of the government. There was no other reason, not even an imaginary one.

Shall we say that Leon Czolgosz is a degenerate? If by this is meant that he is worse than his fellows, yes. If by this is meant that he is so constituted by birth or development that he is physically abnormal and therefore not responsible, no. This idea of calling degenerates all those whose views of affairs become perverted by association with those who glory in pulling down everything that exists because it does exist, by reading only firebrandish literature of anarchism, and by devoting their time to concocting arguments against the fundamental principles of law and order and good government, is absurd. No, Czolgosz is an anarchist, that is all.

So let us leave him and turn to the other side. President McKinley is living to-day, thanks to the skill of the surgeons. This prospect of a fortunate result in this case of national and world-wide interest is due to the prompt surgical intervention and the application of the best technique and surgical science of to-day. But for these, the anarchist's bullet would have been successful or a practical miracle would have had to have occurred. Those who were called on to save the President deserve all the praise and honor that will be theirs for having proved themselves equal to the occasion.

Surgeons are being called on daily to do more delicate and more difficult operations than was this on the President, but in a patient so illustrious, it required courage in any one who should attempt it. A critical world watched, and the hopes of a nation were centered on this operation, and a false step, or faulty technique in the slightest degree would mean a mighty disaster. Had there been lack of prompt decision to operate, irretrievable damage would have been done, and the tragedy would have been complete.

This prompt decision to operate gave evidence of courage as well as rare surgical judgment. Perforation of the gastro-intestinal tract into the peritoneal cavity is a most serious condition in any case and those who attempt to meet it know that conditions may be revealed when the abdominal cavity is opened that might defy even the surgical skill of the day to overcome. It is for this reason that courage in this case was necessary. When the cavity was opened and the stomach and the intestines had been examined and two openings in the stomach was the sum of the pathological lesions found, the surgeons certainly breathed more freely, for modern surgery was equal to the emergency. If conditions passing surgical skill had been discovered, who can tell what imprecations would have been heaped on those who operated, when death should end the scene!

We repeat: under the circumstances, it required courage for the surgeons to do their duty, but they did it. The medical profession of America is proud of and congratulates the surgeons who worked so faithfully to save the chief magistrate of the Nation. They only did their duty, it is true, and thousands of others might have done as well, but nevertheless praise is theirs and we accord it.

THE METHODS OF THE ANTIVIVISECTIONISTS.

There has just come into our hands a pamphlet entitled "Concerning Human Vivisection, a Controversy," which calls for some notice. It contains the original letter of Mr. James M. Brown, the president of the American Humane Association, to Dr. W. W. Keen and the latter's reply published in THE JOURNAL, together with

a counter reply or "Review" of the same by an anonymous writer.

It is unfortunate that the American Humane Association can not in its publications give evidence of the truth of the assertion of its president in a recent communication to THE JOURNAL that it "can have no quarrel with the medical profession." Its first pamphlet on "Human Vivisection" showed an animus to make the greatest use and widest application of certain alleged facts against the profession generally, not so much by specific statement as by the utmost utilization of illegitimate inference. In the pamphlet just received, the same spirit is manifested. If the Association had really desired to put the matter fairly before the public why did it not include Dr. Keen's last letter? If it had done this the anonymous reviewer would have had an opportunity to point out the "serious misquotations" spoken of by Mr. Brown in his recent communication (August 31), if they existed, a possibility of which we have our doubts. A writer who meets the proven charge of interpolation of whole sentences and ideas foreign to the context in an alleged quotation, as in the Schreiber case, only by admitting a "far too free translation" and who leaves an important term like *carcinoma disséminé* in the original rather than put it into intelligible English, is not one that inspires faith in his criticisms or the accuracy of his assertions.

The subject of human vivisection appears to have been brought up as a side issue to help the general antivivisection crusade, and Dr. Keen's remarks before the Senate Committee that some of the references to the experiments quoted were vague and indefinite, and in other cases that they were garbled, was the starting point of the present controversy. Dr. Keen has fairly proved his statement, as will be admitted by any one who reads his first letter, and it it difficult to conceive how any clear-headed individual can be made to believe the contrary. The attempt to make out a difference of meaning, because in his oral statement he did not use the word "references" but spoke only of experiments, is an unworthy quibble and would not be made except by a quibbler. The context shows that he could mean nothing else, and the quibble is not an answer to the fact that he fully proved their vagueness and indefiniteness as well as the garbling of the quotations.

When a reviewer attempts to excuse the addition of words and sentences to pervert the meaning of an alleged quotation on the plea of the necessity of "brevity of quotation" it is hard to believe he is not conscious of being a humbug. When the original authority is referred to, and in his "review" the anonymous author quotes the original text, the value of the plea of nonresponsibility for the "far too free translation" can be properly estimated. The only way one can account for the vagaries of the reviewer in this case is on the theory that he possesses an altogether vicarious conscience that enables him to disregard the ordinary moralities of veracity and the observance of the ninth commandment.

The impression the Humane Association seeks to convey through its anonymous champion is that the medical profession commonly indulges in what it calls human vivisection and that it is generally an apologist and supporter of unjustifiable experiments on human subjects. The fact is there have been a few rare instances of the kind that were promptly condemned by the profession generally, long before the Humane Association ever paid any attention to the subject. The medical conscience is alert on this matter, for if human life and welfare is sacred to any one it is to the physician, and in this he is in bright contrast to the average antivivisectionist. There are other experiments that are questionable in their propriety though their results are not serious, but these also are few and are generally condemned. There are still other cases that are open to misconstruction and misrepresentation; every new operative or therapeutic measure is in its way an experiment, and the venturesome investigator is liable to charges of recklessness and inhumanity by such critics as those of the Humane Association. Ephraim McDowell was in danger of his life from the humanitarians of Kentucky in his day; only his brilliant success saved him, and he was even then under the condemnation of the conservatives of his own profession.

If the antivivisectionists had their way there could be little progress in medicine and surgery; the chance for President McKinley's life is due to the sacrifice of hundreds of lower animals, and the courageous application of the facts thus gained on human subjects falls fairly within what Mr. Brown and his anonymous hack writer would call human vivisection. Twenty-five or even twenty years ago, President McKinley's case would have been hopeless from the start, and if the antivivisection branch of the Humane Association had had its way it would have been so now. Twenty years from now other conditions at present hopeless will probably be within the physician's and surgeon's control, but only through experimentation on the lower animals and the cautious but fearless testing of the results thus gained on the human system.

No one can calculate the beneficial results to mankind of the recent yellow fever experiments in Cuba attended as they were by risk voluntarily assumed and even loss of life. If the justification of such deeds as these is what the Humane Association calls "suggestion of excuses for offenders," they may go on with their threatened exposure of the "crime against civilization" as rapidly as they may desire, only we would suggest to them and their writers that a disregard for truth, not only in direct statement but also in insinuation, is neither advisable nor commendable. So far there seems to have been a very general lack of consideration of this fact in their contributions to the present controversy, especially by their anonymous hack writer.

ACCIDENTAL SERUM DEMONSTRATION.

The Calmette antivenene has, as we learn from the Paris correspondent of the London *Lancet,* been put to the test as regards its efficiency by Dr. Calmette himself on his own person. While handling one of his reptiles the forceps slipped and he was severely bitten in the right hand. He immediately gave himself an injection of antivenene, and though his hand swelled considerably and there was some fever, he was able to attend to business on the afternoon of the same day, and was perfectly recovered on the following one. The serpent was one the poison of which is exceedingly rapid in its action, and the result is claimed as conclusive proof of the protective virtue of the serum. While an experiment like this is hardly to be recommended, the accident was in its way a fortunate one, and was doubtless as satisfactory to Dr. Calmette as if it had been premeditated.

DOG LIVER OIL.

The latest consumption cure—or rather one of the latest, for new ones are bobbing up almost daily—hails from one of our interior cities, and, as given out in one of the dailies of that city, it does not seem an attractive one. The gentleman who has the contract for the removal of dead animals from the streets has found that an oil prepared from the hearts and livers of dogs is a sovereign cure, and a number of cases are named where wonderful results are said to have followed its use. All other seekers for a cure are said to be wasting their time, now that the virtues of the extract from the hearts and livers of deceased canines have been discovered; thus dog liver, not cod liver, oil, is to be the oil of the future. The associations in the account are not exactly such as to make the preparation particularly appetizing, but what does that matter with an infallible cure for such a disease! It finds a utility in even a dead dog, which has heretofore been the very superlative expression of worthlessness.

THE OFFICIAL BULLETINS.

The judicious method of imparting information to the public by bulletins of the President's condition, is a feature that is to be commended. The possibilities of misconstruction of statements and the danger of premature announcements have been very evidently considered. In a case like this, medical secrecy is of course impossible; the people demand information, but it is a matter of some importance that the facts are given out in such a way that they can not be distorted by the imagination of the recipients. The surgeons in attendance on President McKinley have adopted the plan of having every official bulletin signed by the President's secretary as well as by themselves and have, in spite of pressure, apparently refrained as far as possible from any individual expression of opinion. The public can, therefore, feel assured that what it learns is reliable and that there is no confusion of individually expressed opinions or medical gossip in regard to the case. While the President is a public character he has also the rights of a citizen, and it is proper, therefore, that what is given to the public and which in the nature of the case it has a right to demand, should be sent out under official sanction and as it were from the President himself.

INFECTION OF THE URINARY BLADDER.

By reason of the frequent presence of intestinal bacteria, or the colon bacillus, in the bladder, in cases of cystitis, and of the anatomic relations of the rectum and the bladder, it has been thought that under such circumstances direct infection takes place from the rectum. It has, further, been possible experimentally to excite cystitis by inflicting injury upon the rectal epithelium. In order to verify or refute these propositions R. Faltin[1] undertook an experimental investigation, as the result of which it was found that following a lesion of the rectum at the level of the prostate, however profound or extensive, neither cystitis nor the presence of intestinal bacteria in the bladder was observed so long as the latter viscus was uninjured, providing fatal general infection or peritonitis did not occur at the same time as a result of the lesion. Such infection or peritonitis was rather frequent, especially in the sequence of more considerable lesions. Under these circumstances elimination of bacteria through the kidneys may take place and give rise to bacteriuria. In one series of experiments, cystitis developed gradually but once without simultaneous septicemia or peritonitis, and in another series transitory bacteriuria but once. On the other hand, microscopic examination of the rectum and the bladder showed that at times bacteria in large number may invade the rich lymphatic structures between the rectum and the bladder and surrounding the prostate, the seminal vesicles and the bladder beneath the peritoneum, in the sequence of quite inconsiderable lesions of the epithelium. If the bladder is injured in consequence of artificial retention, intestinal bacteria may occasionally find their way from a wound of the rectum along the anatomical paths indicated, with the development of bacteriuria or cystitis.

THE ETIOLOGY OF YELLOW FEVER.

The experiments of Reed, Carroll and Agramonte, while generally accepted as conclusive by the scientific world, are not so accepted by some of the adherents of Sanarelli. One of the most striking attacks on the mosquito theory of the conveyance of yellow fever infection has been made in a paper read before the National Academy of Medicine of Rio Janeiro by Dr. J. B. Lacerda and published in the *Brazil Medico* of August 1. The author rejects the diagnosis of the American physicians because he does not find in their reported cases the characteristic symptoms of yellow fever, the anuria, etc., and all recovered completely in a few days (ignoring the case of Dr. Lazear), and in other ways he deduces that their conclusions are unjustified and fallacious. His great argument, however, is that Sanarelli's bacillus is an established fact, and that it is presumptuous on the part of any one to question it. The clinical picture of yellow fever, he says, is throughout that of a bacillary disease like typhoid or plague, and nothing about it indicates a protozoan origin which he assumes is accepted by Reed and Carroll. Their work therefore is, he claims, unsci-

1. Centralblatt f. d. Krankheiten d. Harn- und Sexual-Organe, Band xii, Heft 8, p. 401.

entific and their attempt to discredit the discoveries and theory of Sanarelli, whether through partisanship or in a general spirit of opposition by unestablished and imaginary findings, is to deliberately seek to obscure the clear facts of science and hinder the onward march of truth! The later results of experimentation must be now known to Lacerda, but in Dr. Caldas, whose serum has failed, he will probably still find an ally in questioning the diagnosis. The paper is, however, altogether too *a priori* and his insinuations of national prejudice, etc.. on the part of the American investigators are, to say the least, unscientific. The mosquito origin of yellow fever will be none the less generally accepted, until some stronger points are made against it.

THE PRESIDENT'S CASE AND THE NEWSPAPERS.

The majority of the newspapers of the country have honestly tried to supply their readers with all the facts, and only facts, about the President's case. But the possibilities for the "fake" in yellow journalism were too many to be ignored and consequently these were "extraed" with profitable results to the proprietors. While the bulletins of the attending men repeatedly announced that their patient was resting comfortably, these newspapers contained columns, double-leaded and scare-headed, about the "agony" and the "torture" which the President was bravely bearing, all pure "fake." The "agony" of the operation consisted in the little unpleasantness of the first few whiffs of the ether. Except when the wounds were dressed, the President has had no pain, and the dressing of the wounds probably caused but little suffering, if any. There would be no pain from the wounds in the stomach, and of course none from the abdominal wound, unless vomiting ensued after the anesthetic, which we understand was not the case. As is usual in such cases, a few of the newspapers have been free with advice as to what should and what should not have been done by the surgeons, this supplemented by suggestions from members of our profession in the form of interviews. As a rule, those in attendance on a case know better what are the conditions and how they are to be met than outsiders. This does not seem to be realized by some, who, we are sorry to say, belong to the medical profession. The papers are placing the credit of the successful outcome where it belongs. There is no attempt to belittle the work of the surgeons or to reflect on the good judgment of those in charge of the President's case. The advance of surgery is acknowledged by one paper in the sentence: "The surgery of to-day and not that of twenty years ago was applied to the stricken President." Another says: "The public in its gratitude for the progress made by the president within the most critical period following the operation will not forget the credit due to the surgeons who attended and to the practitioners who during the past half century have worked with such good purpose in securing the wonderful advance of surgical science." And another: "If he should finally recover, as all signs now indicate, it will be justly regarded as the most notable triumph of twentieth century surgery." In similar manner the newspapers are all speaking a good word for modern medicine.

The Shooting of the President.

(From our Correspondent.)

BUFFALO, N. Y., September 12.

Within an hour of the infliction of the wounds received by President McKinley, he was operated upon at the Exposition Emergency Hospital. The surgeons present were Drs. Matthew D. Mann, Professor of Obstetrics and Gynecology, University of Buffalo; Dr. Herman Mynter, Professor of Operative Surgery, University of Buffalo; Dr. John Parmenter, Professor of Anatomy and Clinical Surgery, University of Buffalo; Dr. E. Wallace Lee, of St. Louis, Mo., who happened to be on the Exposition grounds; Dr. Eugene Wasdin of the Marine-Hospital Service, and Dr. Presley M. Rixey, physician to the President.

The operation was performed by Dr. Mann; first assistant, Dr. Herman Mynter; second assistant, Dr. John Parmenter; third assistant, Dr. Lee. Dr. Eugene Wasdin gave the anesthetic, which was ether. The operation lasted forty-five minutes. Dr. Rixey arrived at the latter part of the operation. There were two wounds, one about the center of the sternum, the other two and one-half inches below the free costal border on the left side and in the semilunar space. It was this latter wound which necessitated the speedy operation. A five-inch incision was made and the course of the bullet followed up. It was found to have penetrated the anterior wall of the stomach. The opening was small and was sutured with silk. After closing this a search was made of the intestines; the stomach was lifted from its position and a larger perforation was found in its posterior wall. It was over an inch in diameter, jagged and irregular. This wound was sutured with black silk also. Continuous catgut was used for the fascia. The skin was coaptated with six through-and-through silkworm stitches, and interrupted catgut was passed between the silkworm gut. The abdominal cavity was thoroughly irrigated with normal salt solution. There was very little food in the stomach at the time of the shooting; because of the dexterity of the operators and this happy incident no foreign matter entered the peritoneal cavity from the stomach. The wound was closed with catgut, without drainage, and bandages were applied. The bandages were removed at 8:30 a. m. Saturday and showed but little staining.

Before anesthesia had passed off, the President was conveyed by ambulance to the residence of Mr. John G. Milburn, president of the Pan-American Exposition, the emergency hospital being for temporary use only.

There are three nurses and three orderlies in attendance on the President. Dr. Rixey and one of the surgeons are with the President each night, and consultations of all the surgeons are held three times a day. Dr. Roswell Park was at Niagara Falls and came on a special train, and assisted during the latter part of the operation. He is surgeon in charge. Dr. Charles McBurney, New York, was called in consultation on Saturday, and is still here. He is the guest of Dr. Mann.

The surgeons are much inconvenienced by the incessant inquiries from reporters and are very guarded in their remarks.

NURSES ATTENDING THE PRESIDENT.

The male nurses in attendance on the President are from the United States Army Hospital Corps, who were detailed for this duty immediately after the shooting of the President, from the detachment of Hospital Corps men on duty with the Field Hospital Exhibit of the Army Medical Department at the Pan-American Exposition. The men selected for this responsible duty were Acting Hospital Steward Palmer A. Eliot, and Privates Ernest Vollmeyer and John Hodgins. All of these men completed the excellent courses of instruction at the School for Hospital Corps men at the Army General Hospital at Washington Barracks, D. C.; besides which Steward Eliot is a graduate of the Bellevue Hospital Training School for Nurses, and Private Vollmeyer is a graduate nurse of the Presbyterian Hospital of New York City. Private Hodgins is a soldier of nine years' army service and long experienced in military hospitals. Much of the attention required in the President's case is of such nature as can not well be performed by female nurses in attendance, and the efficiency of these men

is such as to have elicited much favorable comment from the staff of attending surgeons. Army medical officers are highly gratified that the hospital corps should be officially connected with the President's case and have the opportunity of so publicly demonstrating its professional efficiency and the excellence of its personnel.

The female nurses in attendance on the President are Miss Helen Mohan, a graduate of the Buffalo General Hospital Training School; Miss Conley, a graduate of the Buffalo General Hospital Training School and lately clinic nurse at the German Hospital; Miss Hunter, nurse of Mrs. McKinley, and Miss Grace McCullough, of Baltimore, has been summoned.

As the President continues to improve the excellent judgment and great wisdom in the surgeons who first saw him in treating the President as a citizen and in not being concerned with too much formality or red tape become more and more apparent. The operation from the course of symptoms is to be regarded as an aseptic one. The heat resulting from the discharge of the revolver made the bullet practically aseptic, and the perforations of the stomach wall will heal soon because the sutures passed through normal tissue, and not, as in the case of tumor or ulcer, through diseased tissue. The wonderful dexterity of the operators, Drs. Mann and Mynter, prevented any discharge of stomach contents into the peritoneal cavity; hence no symptoms of peritonitis have or are expected to occur.

It is impossible at the present time to get a more detailed technical description of what was done at the operation than that which I have already given.

One of the surgeons in attendance was asked by a press representative to compare Garfield's case and its treatment with that of President McKinley, and in reply stated that to do so would be to give the history of the progress of twenty years of surgery. Besides, he said, the two cases are entirely different. Garfield's wound was an extremely unfortunate one in every way, hard to get at and difficult to handle. The wound of President McKinley, on the other hand, is in many respects a fortunate one. No comparison is possible.

During Tuesday night two stitches were removed, on account of some perceptible irritation. The wound was cleansed and again closed. It is the belief of all the surgeons in attendance on the President that his recovery is certain. If peritonitis were to have appeared its symptoms would have been manifest long before the time of this writing, and the fact that the kidneys and bowels have been functionating normally since Tuesday showed that the surgeons have good reason to be hopeful. Until early Tuesday morning the President received stimulants only hypodermically, but at that time was given a nutritive enema. In the afternoon beef juice was given by mouth. It is not necessary to give sedatives, for the patient gets four or five hours sleep.

Medical News.

ALABAMA.

Personal.—Dr. Blackshear, of Gordon, has located at Webb. ——Dr. Thomas S. Mitchell, Eufaula, has moved to Pensacola, Fla.

Cornerstone of Colored Hospital Laid.—The cornerstone of the Woman's Mission Congress Hospital for Colored Sick at Birmingham, was laid with appropriate ceremonies, August 29.

CALIFORNIA.

Dr. Benjamin F. Church, Los Angeles, is spending September and October in New York, engaged in special lines of post-graduate work.

Dr. Orville O. Witherbee, Los Angeles, has been elected superintendent of Los Angeles County Hospital, vice Dr. Ernest A. Bryant, resigned.

Lectures at Cooper Medical College.—Dr. Malcolm Morris, London, editor of the *Practitioner*, delivered the Lane lectures on "Affections and Diseases of the Skin," at Cooper Medical College, San Francisco, last week.

Dr. Antrim E. Osborne, Eldridge, for fifteen years superintendent of the Home for the Care and Training of Feeble-Minded Children at Glen Ellen, Sonoma County, has been succeeded by Dr. William M. Lawlor, San Francisco.

Personal.—Dr. Louise M. Richter, Garvanza, who has been ill for six weeks, has gone to Santa Barbara for a month.—— Dr. Peter L. Wheeler, Oakland, trustee of the Merritt Hospital, has taken a trip to the eastern cities to study the conduct of hospitals.——Dr. Richard C. A. Urquhart, Los Gatos, has gone to Bolinas Bay for his vacation.

Physicians Warned.—The secretary of the San Francisco Board of Health states that a list is being compiled to include the names of all the physicians in the city who neglect to file certificates of birth as required by law. The law requires the filing of birth certificates just as much as it requires the filing of death certificates, and there is a heavy penalty for failure to observe the law. It is intimated that legal proceedings will be begun against every physician whose name is on the list.

COLORADO.

New Hospital at Victor.—It is rumored that the Victor Miners' Union, the Teller County Commissioners and the physicians of Victor are planning to build an emergency hospital.

On the Trail of Itinerant Physicians.—Dr. Seymour D. Van Meter, Denver, secretary of the State Board of Medical Examiners, is in Colorado Springs, investigating the doctors and alleged doctors who come to Colorado Springs, Manitou and vicinity to practice without license.

"Faith Healer" Yields.—Francis Truth, the "faith healer," who is under indictment for fraud and using the mails to deceive, has retired from business permanently, according to an agreement sanctioned by the attorney general, and has publicly burned all his papers, priestly costumes and healing appliances in the presence of representatives of the United States district attorney.

FLORIDA.

Dr. J. H. Colson, Waldo, has been appointed surgeon to the State Hospital for the Insane, Chattahoochee, vice Dr. Louis De M. Blocker, resigned.

The Pensacola Quarantine Station, which has recently been taken over by the United States Marine-Hospital Service, has been appraised at $20,000.

Personal.—Dr. John C. Bishop, of Aucilla, has moved to Alachua.——Dr. Henry H. Stebbins, Tampa, has been visiting his old home in Central City, Colo.

"Mental Healers" Bonded.—Three leaders of the Mental Science Association of the World, who were arraigned at Jacksonville for using the mails for fraudulent purposes, have been released on bonds of $5000 each. They made a specialty of "absent" treatments, with excellent financial results.

GEORGIA.

New Dispensary.—The Presbyterian Hospital, Atlanta, has opened a free dispensary and clinic at 80-82 Central Avenue.

Augusta City Hospital is now reopened after extensive repairs. The present capacity of the hospital is 75 beds, exclusive of rooms for private patients.

Personal.—Dr. George Brown, Atlanta, on his return from the Tuberculosis Congress in London, was shipwrecked near Boston.——Dr. Marion O. Fulcher, Waynesboro, late acting assistant surgeon, U. S. Army, has returned from the Philippine Islands and resumed practice in Waynesboro.

Competitive Examination.—A commission of physicians, consisting of Drs. William S. Elkin, James B. Baird and Joseph B. S. Holmes, Atlanta, has been appointed to conduct a competitive examination, in Atlanta, October 7, of applicants for appointment on the medical staff of the sanatorium at Milledgeville. This examination required by the laws of the state, is necessary to render applicants eligible for election to any vacancy that may occur on the medical staff, but does not apply to persons now holding office in the sanatorium. All applications must be filed with the chairman of the commission, Dr. William S. Elkin, Atlanta, at least one day before the time set for the examination.

ILLINOIS.

The Norbury Sanatorium Company, Jacksonville, has been incorporated with a capital stock of $9000 by Dr. Frank P. Norbury and others.

Dr. **Alanson W. Hawley,** of the staff of the Illinois Eastern Hospital for the Insane, has resigned, and will go to Europe to take special work in diseases of the eye and ear.

Vaccination Ordered.—The East St. Louis Board of Health has issued a proclamation enforcing vaccination on all persons, and has also formulated rules for the government of the local isolation hospital.

Sherman Hospital Once More.—Peace has decided not to brood over Sherman Hospital, Elgin, just now, despite the reports noted in last week's JOURNAL. The ladies in charge not only formally accepted the resignations of Drs. Rutledge, Taylor and Bridge, September 2, but also cited them to appear before the next meeting of the hospital board and show cause why they should not be dismissed from the staff.

Personal.—Dr. Roy H. Garm, Beardstown, expects to practice in Rock Island.——Dr. and Mrs. James W. Cormany, Mt. Carroll, have returned from an extended visit in the East.——Dr. Samuel E. Munson, Springfield, who was injured by a runaway team in Rochester, is securely convalescent ——Dr. C. C. Rayburn, Roseville, expects to open an office in Kewanee. ——Dr. J. Frank Wilson, Versailles, will locate in Bluffs.——Dr. James E. Woelfle, New Grand Chain, has moved to Paducah, Ky.—Dr. and Mrs. E. W. Weis, Ottawa, are visiting Hot Springs, South Dakota.

Chicago.

Christian Hospital has been incorporated with a capital stock of $25,000 by Dr. Emma M. Moore and others.

Needed Precautions at County Hospital.—Within a year three delirious patients at the County Hospital have escaped from their attendants and leaped or fallen from windows unprotected by bars. Two of them were killed.

Chicago Mortality.—There were 483 deaths during the week ended September 7, this being 32 fewer than during the preceding week, but an excess of 39 as compared with the corresponding period of last year. The reduction in the week's mortality as compared with the week preceding is due chiefly to the lower mortality among children under 5 years of age, and is principally attributed to fewer deaths from the acute intestinal diseases, diphtheria, convulsions and infantile marasmus. The continuance of the remarkably low mortality from diphtheria which has prevailed throughout the summer months still holds good, there having been only 4 deaths recorded as due to this disease during the week. With the reopening of the public schools, however, there has in times past been a marked increase in the contagious disease mortality—especially diphtheria.

Personal.—Dr. Robert C. Wilson has returned from a two-months' vacation at Lake Harbor, Mich.——Dr. and Mrs. George W. Whitfield, who have been spending the summer in Colorado, Utah and California, expect to return to the city September 15.——Dr. and Mrs. B. Brindley Eads have returned from their trip to the Pacific Coast and Yellowstone Park.——Dr. Harry P. Woley and wife have returned from Harbor Springs, Mich.——Dr. G. Frank Lydston has returned from a trip through Colorado and New Mexico, and has moved into his new house on Sheridan Road.——Dr. Charles Gilbert Davis has returned from his summer home, Waunita, Colo.——Dr. and Mrs. E. Perry Rice have returned from a trip on the great lakes and the St. Lawrence.——Dr. and Mrs. John E. Owens have returned from a trip to the Atlantic seaboard and Baltimore.——Dr. Violet H. Palmer, formerly of the staff of the Illinois Eastern Hospital for the Insane, has opened an office at 100 State Street.——Dr. Henry Parker Newman has sold his summer home in Highland Park and moved into his new house in Edgewater.

INDIANA.

Dr. **James S. Hinkle,** Indianapolis, who was injured a year ago in a street-car accident, has filed suit against the Indianapolis Street Railway Company for $10,000 damages.

An Old Offender.—A "doctor" of Mier has been arrested charged with practicing medicine without a license and with having failed to make a death return. He is reported to have been previously arrested on a similar charge, and also to have served a ninety-day sentence in the Indianapolis workhouse for passing counterfeit money.

Typhoid Fever in a Convent.—The opening of the Academy for Young Ladies at Oldenburg, Franklin county, has been postponed until September 17 by order of the State Health Board. There are many cases of typhoid fever in the mother house of the convent, although but five are considered serious. Examination of the structures on the spacious grounds revealed them to be in perfect sanitary condition, but the fifteen cisterns and four wells upon the place were immediately sealed by the officials and samples of the water reserved for analysis. During the past two months sixty cases of typhoid fever have been reported from the institution, but at present writing there seems to have been no mortality.

IOWA.

Charles Francis, Davenport, has been appointed the civil engineer member of the State Board of Health.

Smallpox was discovered in Finley Hospital, Dubuque, August 21, and the patient removed to the isolation hospital.

Smallpox.—Dr. Heinrich Matthey, Davenport, member of the State Board of Health, discovered four cases of smallpox in West Liberty, August 31.

To Raise Fees.—The Council Bluffs Medical Society has decided to raise fees for night calls to five dollars. It is to be hoped that the members will be able to raise the fees.

Dr. Bernard C. Kelly, Carroll, has been annoyed of late by an unscrupulous individual who has been traveling around Carroll county taking orders for glasses. He offers a reward of $10 for information that will lead to the arrest and conviction of the swindler.

Dr. M. Nelson Voldeng, Des Moines, was elected superintendent of the new State Hospital for the Insane at Cherokee, September 5, by the State Board of Control. Dr. Voldeng was for nine years assistant superintendent of the State Hospital for the Insane at Independence.

Personal.—Dr. McCoy had his leg broken in a runaway accident in Clinton, August 20.—Dr. Anne E. Burnett, for several years assistant physician at the Iowa Hospital for the Insane, Clarinda, has resigned and will go to Scotland for a year of study.—Dr. Edward D. Piper, formerly of Chicago and Wall Lake, has located in Moorhead.—Dr. Charles P. Tillmont has moved to Centerville.

LOUISIANA.

The Orleans Parish Medical Society has appointed a committee to investigate the mosquito in its relation to disease.

Lawrence Gomila, a member of the class of 1901, Tulane University, and an interne student in the Charity Hospital, died from appendicitis, August 18.

Tulane Appointments.—Dr. John Smythe, Jr., has been appointed demonstrator of minor surgery, and Drs. L. C. Chamberlain, C. N. Chavigny and I. I. Lemann have been appointed chiefs of clinic to the chair of gynecology, medical department, Tulane University.

MAINE.

New Physicians.—The Board of Medical Registration at its recent examination held at Portland passed fifty out of the fifty-five applicants.

Dr. Philip H. S. Vaughan, Augusta, who has been assistant physician at the Maine Insane Hospital, has moved to Bangor, where he is to occupy a similar position in the newly-established insane hospital.

Personal.—Dr. C. F. Kendall has opened an office in Biddeford.——Dr. D. W. Wentworth, York, has moved to Sanford. ——Dr. John Knowlton has returned from six months of study in Germany, and will practice in Bath.——Dr. M. M. Small, Deer Isle, intends to locate in Gorham.——Dr. P. M. Andrews, Gray, has begun his work as house physician of the Maine General Hospital, Portland.

MARYLAND.

The Howard County Grand Jury has found indictment charging Dr. J. W. Sim with failure to report smallpox cases.

Killing of Flies.—The Lonaconing Health Board prescribes the killing of house flies as a sanitary measure, and an anti-pigeon law will go into effect this fall.

Smallpox.—Several case of smallpox are reported in the southern part of Caroline County (Eastern Shore) near the Delaware line, traced to a negro camp meeting.

Personal.—Dr. Joseph Ennis, Burkittsville, has moved to Waynesboro, Pa.——Dr. Frank Dorsey, Green Spring Valley, Baltimore County, has gone to Butte City, Mont.

Baltimore.

Raising Standard for Nurses.—The Sisters of Mercy in charge of the City Hospital are raising the standard in their school for nurses. The course will be a three-year one, with dietetics in the third year.

Smallpox.—In Baltimore during the past three years there have been 48 cases of smallpox, and in no instance has the disease spread beyond the house in which it was discovered. Slight outbreaks in the counties have been treated almost as effectively.

Personal.—Dr. Isabella K. Godfrey is at Atlantic City.——Drs. George A. Fleming, A. Friedenwald and J. C. Hemmeter have returned from summer vacations.——Dr. Ira Remsen, president of Johns Hopkins University, has been cruising along the coast of Maine in Mr. R. Brent Keyser's steam yacht, and is now at Bar Harbor.——Dr. C. P. Strauss is at Buffalo.——Dr. Alfred Whitehead is at Montreal.——Dr. J. L. Graham is at Boston.——Drs. L. M. Allen and H. A. Naylor sailed for Bremen from this port, September 4.——Dr. Allen will take a special course of studies abroad for a year.

MICHIGAN.

Personal.—Dr. Edward B. Patterson, Manistique, has disposed of his practice to Dr Cole, Traverse City, and will go to Europe for a course of special study.

Dr. Benjamin F. Sheeder, Saline, who has lain unconscious for five months at his father's house, in Springfield, Ohio, as a result of cerebral hemorrhage, is improving so that he now can talk and move his limbs.

W. Fred. Buck, Muskegon, a diplomate of the "Independent Medical College," Chicago, plead guilty of practicing medicine without a license, August 30, and on his promise to abandon practice in Michigan, was fined $15 and costs.

MINNESOTA.

A new contagious ward for the St. Paul City and County Hospital is to be erected this winter.

The Detention Hospital, Benson, was struck by lightning, August 28, and set on fire. Fortunately, no patients were in the building at the time.

A hospital annex to the Minneapolis Home for Children and Aged Women, is to be erected at a cost of $7000. It will accommodate about thirty patients.

The anti-vaccination movement in Minneapolis appears sluggish. At a meeting called, August 28, for the purpose of organizing an anti-vaccine society only two persons appeared, and the matter was postponed indefinitely.

Personal.—Dr. Thomas N. McLean, Fergus Falls, is taking a two weeks' vacation, and Dr. Thomas F. McLean will care for his practice.——Major H. F. Hoyt, formerly of St. Paul, who has been serving in the Philippine Islands, is visiting in Minneapolis on leave of absence.——Dr. H. F. Sterzing, Austin, Texas, has located in Mankato.

MISSOURI.

Dr. J. W. Williams, Bloomington, was fined $50 in Macon, August 29, for practicing medicine without a license. He took an appeal to the Circuit court.

New Dispensary.—Drs. John W. Perkins, B. Clark Hyde and others have established a free dispensary in connection with the North End Day Nursery, Kansas City.

Personal.—Dr. Frank Bleakney has opened an office in South St. Joseph.——Dr. F. H. Randall, house surgeon of the Wabash Hospital, Moberly, has resigned and will study in Vienna for a year.

New Hospitals.—Permits were granted to two persons to conduct private hospitals in Kansas City, on the condition that they care for children only and take no maternity cases.——Jefferson City is to have a new hospital to cost $15,000.

NEBRASKA.

Refrigerator for Creighton.—Creighton Medical College, Omaha, has awarded a contract for a refrigerating plant for preserving its cadavers.

Personal.—Dr. and Mrs. Chester A. Brink have returned to Ord after a visit in Chicago. Dr. J. J. McGirr, Beatrice, has returned from a post-graduate course in Vienna.

Lt.-Col. Charles K. Winne, U. S. Army, has been ordered to Omaha to assume charge of the chief surgeon's office of the Department of the Missouri, relieving Lt.-Col. James P. Kimball.

Smallpox among Sioux Indians has caused the postponement of the council of Sioux Presbyterians and Congregationalists, which was to have convened this month at Santee agency.

NEW YORK.

Quarantine Raised.—The smallpox epidemic in Whitehall, which began in June, is now over, and quarantine has been raised.

Age Disqualifications.—The partial examinations for medical students provided for by the last legislature can not be taken by any person under 21 years old. Many students are thereby debarred from taking the examination, and the relief sought for by the law is nullified.

Dr. C. W. Hoyt, Corning, mysteriously disappeared from a C. & B. steamship while en route from Cleveland, Ohio, to Buffalo. His body was recovered from Lake Erie at Geneva, Ohio. As no money was found on the person of the deceased the first theory that the doctor was robbed and afterward thrown overboard is confirmed.

New York State Population.—According to the bulletin issued by the U. S. Census Bureau, dated August 29, the total population of New York state is 7,268,894, the percentage being 50.3 females to 49.7 males. Of these 26.1 per cent. are foreign born and 1.5 per cent. are colored. The latter class is divisible into 99,233 negroes, 7170 Chinese, 354 Japanese, and 5257 Indians.

Buffalo.

Dr. H. R. Hopkins was seriously injured by a collision with a trolley car.

Dr. George H. Calkins has been appointed assistant surgeon of volunteers, with the rank of captain.

Dr. Irving Phillips Lyon has been awarded the Hartwig prize of $50 for his essay on cancer distribution in Buffalo for the past 20 years, with especial reference to the parasitic theory.

Dr. Preston H. Bailhache, surgeon U. S. A., has been detached as delegate to represent the service at the meeting of the American Public Health Association to be held in Buffalo, September 16-20.

Death Certificate Refused.—The coroner of Erie County has refused to issue a burial permit in a case in which the death certificate was signed by Dr. Ferdinand Simon, because the latter is not registered with the health department.

Dr. Kinyi Ugai, a graduate of Bellevue Hospital Medical College and of the Royal University of Japan, Tokyo, has registered and received a certificate entitling him to practice in the state.

Legacy to St. Luke's Hospital.—The will of the late Louis T. Hoyt provides, after the payment of certain legacies, that one thirty-second part of the residue be given to St. Luke's Hospital for the Treatment of Consumptives.

Bequests to Hospitals.—The seventeen institutions which expected to receive $25,000 each under the provisions of the will of the late Andrew J. Garvey, will now, on account of shrinkage in values and litigation, receive less than $9000 each.

Health of Buffalo.—According to bulletins from the Department of Vital Statistics, Buffalo during the last decade has been the healthiest of the large cities of the country. Buffalo is fortunate in her natural healthy geographical position and in a department of health which has as its director Dr. Ernest Wende.

The Park Avenue tunnel nuisance, which may grow into an issue at the coming autumnal elections, was not taken up at the meeting of the Health Board, as it had sent a mandatory letter, and as the New York Central road had promptly complied with what one newspaper claims to be engineering impossibilities. Smoke is to take the brunt of the battle.

More Accommodations for Smallpox Patients.—At a recent Health Board meeting two more pavilions were voted to be erected on North Brother Island. These are to be wooden structures about 100 by 50 feet and one story high. Each will accommodate thirty patients, the total cost to be $17,000. Strictly speaking, the epidemic has been thus far mild and a comprehensive quarantine has much improved the mortality statistics.

OHIO.

The next regular meeting of the Ohio State Board of Medical Registration and Examination will be held in the new office of the Board in the new State House Annex.

The entrance examination to medical colleges will be held September 27 and 28 in Cincinnati, Cleveland, Toledo and Columbus, under the direction of the examiners residing in these cities.

Personal.—Dr. Myron S. Clark, Youngstown, has been elected supreme medical examiner of the Foresters of America.

——Dr. Henry Baldwin, Jr., Springfield, has resigned from the staff of the Clark County Infirmary.

Cincinnati.

Dr. **Clarence J. Beckley,** interne to Christ's Hospital, is convalescing from a severe attack of typhoid fever at the home of his parents at Price Hill.

Madam Kelch, a cancer doctor, was found guilty of practicing medicine illegally at Wilmington, Clinton County, on August 30 and was fined $50 and costs.

Cincinnati Teachers' Institute.—At the third day's session, September 5, Dr. W. S. Christopher, Chicago, gave an address, "The Child Study Department in the Chicago Public Schools," and Dr. Carl Ziegler addressed the high-school section on "Physical Training for High School Pupils."

PENNSYLVANIA.

Organize Against Deadheads.—The physicians of Hazleton and vicinity have organized an association having for its object the exchange of deadhead lists among its members.

General Vaccination Recommended.—The Mahanoy City Board of Health has urged the advisability of general vaccination in view of the likelihood of an outbreak of smallpox.

Personal.—Dr. Newton S. Rice, Durham, is in charge of the practice of Dr. H. W. Johnson, Riegelsville, during the absence of the latter at the seashore.——Dr. George B. Goheene has opened an office in Glasgow.——Dr. James Love has located in Dayton.

Bequest to German Hospital.—By the will of the late John D. Lankenau, Philadelphia, president of the board of trustees of the German Hospital, $750,000 is bequeathed to that institution and a similar amount to the Mary J. Drexel Home for Aged Patients of the German Hospital.

WISCONSIN.

William Caswell, Hillsboro, who was found guilty several weeks ago of violating the state law by practicing medicine without a license, was arrested and brought to Viroqua, August 24, but escaped, and, it is believed, has left the state.

Lumber Camp Inspection.—Dr. Henry J. Connor, West Superior, has been appointed inspector of lumber camps for the State Board of Health. He will attend to the cleansing and fumigation of the camps and will also take charge of any smallpox cases in Douglas County.

Dr. **H. Booth Kendall,** Menasha, on August 28, was convicted of failing to report a smallpox case to the health authorities, and was fined $75 and costs. He states that he will appeal the case. Dr. Rodermund, the anti-contagion agitator, took the stand in the defendant's behalf.

Personal.—Drs. Ernest Copeland, Henry V. Ogden and Henry B. Hitz, Milwaukee, are taking a hunting and fishing trip in Northern Wisconsin.——Dr. J. E. Metcalf, Platteville, has succeeded to the practice of Dr. Thomas E. McDermott, Fennimore.——Dr. Frank Foley, Montello, intends to locate in Neshkoro.

Sanatorium for Consumptives.—A Milwaukee syndicate has been formed to build a sanatorium for consumptives in the pine woods north of Rhinelander. The project includes the purchase of 12,000 acres of land, and the projectors expect to make an initial expenditure of $100,000. Dr. Ferdinand W. Schultz has gone to look over the ground and report on its hygienic fitness.

GENERAL.

Examinations for Army Medical Department.—The examination of applicants for appointment as assistant surgeon in the army has been resumed in Washington and San Francisco; the Army Medical Boards convened in those cities will remain in session so long as there are candidates to be examined. Seventy-six vacancies in the Medical Department still remain to be filled, and as it is desired by the military authorities that the Department be filled up to its full legal limit as early as practicable, all eligible applicants will be afforded opportunity for examination; those found qualified will be commissioned at an early date. For further information see elsewhere in this issue or apply to the Surgeon-General, U. S. Army, Washington, D. C.

CANADA.

Anthrax in the West.—Dr. Hargrove, veterinary for the Department of Agriculture at Medicine Hat, N. W. T., states that anthrax has broken out among sheep at Little Current, and that they are dying at the rate of fifty-six per day. Fourteen thousand doses of anthrax vaccine have been wired for from a Detroit firm.

Anthrax in the East.—The outbreak of anthrax in the eastern townships around Ottawa has taken on a serious and peculiar turn. A large number of cattle were inoculated with antitoxin lymph, and a few days later they began to die off in large numbers. Postmortem examinations have shown large numbers of anthrax germs present.

Smallpox Outbreak.—Smallpox is said to be spreading rapidly in the counties of Ottawa and Labelle, province of Quebec; the disease is of the mildest character, and although there are thirty-five cases to date, no deaths have been recorded. The territory is extensive and sparsely settled, and danger is apprehended, as the shantymen who will shortly be going up the Ottawa river will be traversing the infected district.

Deaths from Consumption in Ontario.—The fight against consumption in Ontario is at last beginning to tell in the vital statistics, so says the provincial Medical Health Officer. During July of this year municipalities containing 91 per cent. of the population of the province registered only 182 deaths from consumption, as compared with 284 recorded in July, 1900, by municipalities containing 97 per cent. of the population. A small but noteworthy decline has thus resulted from the improved methods of isolation and the anti-spitting regulations.

Military Doctors Qualify.—The following-named medical officers, having successfully passed the qualifying examinations, have received certificates of proficiency: Surgeon-Major J. Ross, 77th; Surgeon-Captain R. H. Arthurs, 97th; Surgeon-Major J. M. Piper, 7th; Captain A. T. Hobbs, A.M.S.; Lieut. C. N. Lawrie, A.M.S.; Lieut. D. B. Bentley, A.M.S.; Surgeon-Lieut. Balfour, 1st Hussars; Lieut. Tremayne, A.M.S.; Surgeon-Major D. P. Lynch, 42d; Surgeon-Lieut. J. Macoun, 40th; Lieut. A. R. B. Williamson, A.M.S.; Acting Surgeon-Lieut. P. Maloney, 59th; Surgeon-Lieut. A. V. Roy, 6th C. A.; Surgeon-Lieut. Cote, 61st; Surgeon-Major L. M. Genest, 92d; Surgeon-Lieut. E. Savard, 11th; Surgeon-Major T. L. Brown, 54th; Surgeon-Lieut. H. B. Yates, 3d; Surgeon-Lieut. D. D. McTaggart, 1st.

FOREIGN.

Death of Professor Fick.—The Würzburg physiologist, Adolph Fick, died August 22, in his 73d year. His contributions to scientific literature have been numerous and valuable.

Deaths Abroad.—Dr. Hameau, vice-president of the Medical Association of France; Dr. Hermann von Widerhofer, professor of pediatrics at the University of Vienna; Dr. Steinbrugge, professor of otology at Giessen.

Steffan Is Relieved of His Title.—The title of Sanitätsrath—usually coveted by German physicians—was repudiated by Dr. Steffan, as he had no wish to pay the $75 fees attached to the title. After a year or so of red tape the title has finally been withdrawn. The authorities do not state, however, whether the fees are to be repaid or not.

Prohibition of Prescribing by Mail in Germany.—The German authorities are on the point, it is said, of prohibiting "distance treatment," that is, treatment exclusively by correspondence. The kingdom of Saxony was the first to move in the matter, and the Imperial Council of Health has indorsed the proposition, although distance treatment in thinly settled districts can not always be avoided by regular physicians. The measure is to apply exclusively to "mail order" prescribing.

The German Hospital Year for Medical Graduates.—The Prussian "Medicinalministerium" has announced the particulars of the "practical year" in some hospital henceforth to be exacted of all medical graduates before they are inscribed as fully entitled to the degree of "approbirte" physician. The list of hospitals includes only those with fifty beds at least, and the "Praktikants" are assigned one to each twenty-five beds. The list includes all the public and general hospitals, except the plague hospitals and the convalescent homes. All the institutes for special research in anatomy, physiology, pathology, pharmacology, hygiene and legal medicine are included, although not estimated as equivalent to the general hospitals. Only a certain proportion of the time spent in them will be applied on the "practical years." Such institutes, to be eligible, must possess an established scientific reputation and dispose of sufficient material, with resources sufficient to occupy the "Praktikants." The "Landrath," with the assistance of the district physician, will compile the list of eligible establishments for each region.

Married.

JOHN F. DOUDNA, M.D., Lake City, Mich., to Miss Jessie Ross, of Saginaw, August 21.

S. CHARLES MISH, M.D., to Miss Wanda Shirek, both of San Francisco, Cal., August 25.

SAMUEL MOWBRAY HAMMOND, M.D., New Haven, to Miss Katherin Dayton, of Torrington, Conn., September 5.

THOMAS W. KEOWN, M.D., resident physician at St. Agnes Hospital, Baltimore, Md., to Miss Edith Livingston, at St. Albans.

JOHN H. GIBBON, M.D., Philadelphia, to Miss Marjorie Young, daughter of Major General S. B. M. Young, U. S. Army, at San Francisco, Cal., September 2.

Deaths and Obituaries.

George William Wells, M.D., Bellevue Hospital Medical College, N. Y., 1868, of Richmond Hill, Queen's County, N. Y., died September 2, aged 57. He was a member of the Kings County Medical Society (N. Y.) and also of the Association of Medical Directors of Life Insurance Companies. He was the editor of the *Medical Examiner and Practitioner,* and was also medical director of the Manhattan Life Insurance Co.

Gates B. Bullard, M.D., Dartmouth Medical College, Hanover, N. H., 1855, one of the best known physicians of Northern New England, died at his home in St. Johnsbury, Vt., September 4, aged 72. He served as surgeon of the Fifteenth Vermont Infantry in the Civil war; later on was made surgeon-general of Vermont, served in both houses of the legislature and was a commissioner for the insane.

William M. James, M.D., College of Physicians and Surgeons, New York, 1862, died at his home in Whitesboro, Utica, August 26, from heart disease and dropsy, after an illness of seven months, aged 62. He served as examining surgeon of recruits and as acting assistant surgeon during the Civil war, and thereafter practiced in Whitesboro and Utica.

Adolph Aronstein, M.D., University of Munich, Germany, 1860, a prominent physician of San Francisco and consulting physician to Mount Zion Hospital, died at his home in that city, August 28, after a lingering illness, aged 66.

William Barnsmore Pape, M.D., Medical College of Alabama, Mobile, 1882, died in that city, August 30, aged 51. He began a career as pianist at the age of 13, but afterwards gave his time to the practice of medicine.

Abner Franklin Bliss, M.D., Castleton (Vt.) Medical College, 1851, who had practiced for thirty-five years past in Wardsboro, Vt., died at his home in that place from pneumonia, August 13, aged 72.

Alexander Bulla, M.D., University of Wooster, Cleveland, Ohio, 1881, who had practiced medicine in Davidson County, N. C., for forty-five years, died at his home in Jackson Hill, August 20, aged 75.

R. T. McMorrine, M.D., McGill University, 1893, died suddenly at his home in Richmond, Que., September 4, aged 34. He was at one time house surgeon at Bellevue Hospital, New York City.

Clyde W. Crumrine, M.D., Western Pennsylvania Medical College, Pittsburg, 1895, of Charleroi, Pa., died at the Allegheny General Hospital, August 29, from nervous prostration, aged 32.

Lawrence Miller, M.D., McGill University, Montreal, for many years a citizen of Bellevue and Dubuque, Iowa, died after a lingering illness, August 27, at his home in Bellevue, aged 73.

John D. Kielty, M.D., College of Physicians and Surgeons, Boston, Mass., 1883, of Fitchburg, Mass., died at his summer home, East Princeton, August 27, from asthma, aged 43.

William Platt McLaury, M.D., College of Physicians and Surgeons, N. Y., 1875, long a resident of Catskill, N. Y., but more recently of New York City, died August 30.

John S. Combs, M.D., Medical College of Ohio, Cincinnati, 1850, of Owensville, Ohio, died at his home in that place, August 21, after a protracted illness, aged 80.

Daniel T. Taylor, M.D., New Orleans (La.) School of Medicine, 1859, for sixteen years a resident of Hot Springs, Ark., died at his home in that city, August 29.

John F. Baughman, M.D., Starling Medical College, Columbus, O., 1851, died, after a prolonged illness, at his home in North English, Iowa, August 29.

William S. Little, M.D., a resident of Cynthiana for fifty-one years, died from heart disease, August 21. He had been an invalid for about five years.

Robert L. Luckett, M.D., Tulane University, New Orleans, La., 1891, of Alexandria, La., died suddenly at his home in that place, August 29, aged 36.

Richard D. King, M.D., University of Nashville, Tenn., died at his home in Bells, Texas, August 19, after an operation for appendicitis, aged 37.

Frank H. Ravenscroft, M.D., Kentucky School of Medicine, 1893, died at his home in Friendsville, Md., August 19, from typhoid fever, aged 31.

Junius D. O'Brien, M.D., New York University, 1858, of Christian County, Ky., died suddenly at his home in Hopkinsville, August 23, aged 70.

Societies.

COMING MEETINGS.

American Public Health Association, Buffalo, Sept. 16-20, 1901.

American Association of Obstetricians and Gynecologists, Cleveland, Ohio, Sept. 17-19, 1901.

Medical Society of the Missouri Valley, St. Joseph, Mo., Sept. 19, 1901.

Nevada State Medical Society, Reno, Sept. 21, 1901.

Medical Society of the State of Pennsylvania, Philadelphia, Sept. 24-26, 1901.

American Electro-Therapeutic Association, Buffalo, Sept. 24-26, 1901.

Oregon State Medical Society, Portland, Sept. 25-27, 1901.

Utah State Medical Society, Provo City, Oct. 1-2, 1901.

Idaho State Medical Society, Pocatello, Oct. 3-4, 1901.

Tri-State Medical Society of Alabama, Georgia and Tennessee, Nashville, Tenn., Oct. 8-10, 1901.

Wyoming State Medical Society, Evanston, Oct. 8-9, 1901.

Vermont State Medical Society, Montpelier, Oct. 10-11, 1901.

New York State Medical Association, New York City, Oct. 21-24, 1901.

Vermont State Medical Society.—The place of the next annual meeting of this Society has been changed from Bellows Falls to Montpelier. It will occur October 10 and 11.

Omega Upsilon Phi Fraternity (Medical).—The fifth annual convention of this body was held August 29 and 30 at Buffalo, N. Y. Dr. Edward M. Thompson, New York City, was elected president, Dr. Dean O. Thompson, Hornellsville, N. Y., secretary, and Dr. George H. Minard, Lockport, N. Y., treasurer. The next convention will be held in New York City in September, 1902.

Reading (Pa.) Medical Society.—The annual meeting of this Society was held August 26. The following officers were elected: Dr. Irvin Hartman, president; Dr. Seymour T. Schmehl, vice-president; Dr. Louis L. Thompson, secretary; Dr. Oan J. Thompson, treasurer; Dr. W. Murray Weidman, librarian; Dr. M. Le Roy Wenger, curator, and Drs. M. Le Roy Wenger and Fremont W. Frankhauser, censors.

New Hampshire Surgical Club.—The sixth annual meeting of this organization was held at Ben Mere Inn, Lake Sunapee, N. H., August 29. The attendance was good and the program carried out in full. The following officers were elected: Dr. John M. Gile, Hanover, president; Dr. Arthur C. Heffenger, Portsmouth, vice-president, and Dr. Nelson W. McMurphy, Concord, secretary-treasurer.

Tri-State Medical Society of Alabama, Georgia and Tennessee.—The next annual meeting of the Tri-State Medical Society of Alabama, Georgia, and Tennessee will be held at Nashville, Tenn., October 8, 9 and 10. An interesting feature of the meeting will be a series of papers on sociological questions. The following papers have been promised: "Syphilis in the Male as a Social Question—Its Prevention," Dr. Julius A. Childs and W. Leon Champion, Atlanta; "Gonorrhea in the Male as a Social Question—Its Prevention," Dr. W. Frank Glenn, Nashville; "Gonorrhea in the Female—Its Results," Dr. Walter J. Bogart, Chattanooga; "Syphilis in Relation to Diseases of the Eyes," Dr. Alexander W. Stirling, Atlanta; "Tuberculosis—Its Prevalence and Prevention," Dr. J. Dawkins Cromer, Atlanta; "Suppression of Consumption," Dr. Richard C. Bankston, Birmingham; "Marriage and Heredity in Relation to Insanity," Dr. T. O. Powell, Milledgeville, Ga.; "The Development and Control of the Sexual Instinct," Dr. John W. Macquillian, Chattanooga; "Legislation and Its Limitations in the Prevention of Crime and Disease from a Legal Standpoint," "Heredity and Acquired Characteristics as Social Questions," Dr. Rufus R. Kime, Atlanta, and Report of the Sociological Committee through Dr. Rufus R. Kime, its chairman.

CANADIAN MEDICAL ASSOCIATION.

The Thirty-fourth Annual Meeting, held at Winnipeg, Manitoba, 28-30, 1901.

There were in attendance over 175 members from all parts of the Dominion, the second largest gathering in the history of the Association. There were several visiting physicians from the United States.

DR. H. H. CHOWN, of Winnipeg, the president, occupied the chair.

The Question of Medical Defense.

DR. RUSSELL THOMAS, of Lennoxville, Que., had been delegated by the St. Francis District Association to present this subject. He made a strong plea for the formation of a medical defense union and thought that all were agreed of the necessity for such. He supported his contentions by citing two or three cases already well known to medical practitioners in Canada, and after showing that such defense unions were a success in England, he concluded by outlining the plan of medical defense already in vogue and supported by the St. Francis District Medical Association which he was authorized and prepared to hand over entire to the Association. The discussion of this important matter was deferred until later.

The Question of Medical Education.

DR. J. R. JONES of Winnipeg delivered the address in medicine. In opening his remarks he referred to the unsolved problems of medical education, the importance of which were especially manifest in view of the establishment of a Dominion Medical Board. Uniform or equivalent curricula, he thought, would greatly facilitate paving the way for the accomplishment of this object. He thought that the great aim of the Association should be to create a Dominion Medical Board upon such a sound and enduring basis that the qualifications could be registered in every province of the Dominion. They should not only be Canadian, but imperial, capable of registration in Great and Greater Britain. There should be no special education for the profession of medicine and the defect in the preliminary education of medical students should be corrected. The standard is not high enough. Many students came into the medical colleges, their minds totally unprepared, undisciplined, not competent to engage in the different studies of a profession with advantage. He quoted from two eminent authorities who favor the retaining of "classical education" as training for professional studies, Dr. Alexander Hill, a member of our own profession and Master of Downing College, Cambridge, and Professor Jebb of Dublin. He referred to medical matriculation examinations and deplored the lamentable defects in the English paper, the most neglected subject in our primary schools. From an experience of many years as an examiner at the University of Manitoba Dr. Jones has concluded that the teaching of English takes a very subordinate position in our schools. The defect was a universal one; and it was obvious that if English should become a prominent subject of medical matriculation examination every student ought to be able to express his thoughts coherently and intelligently. The didactic lecture came in for adverse criticism, and defects and useless wastes of time, which could be more profitably employed, were pointed out. Persistent work in the dissecting room under the guidance of an experienced demonstrator who will describe, discuss, and constantly orally examine the student, is a rational and effective method of teaching anatomy. Medical jurisprudence and sanitary science were not properly taught.

Dr. Jones supported the "case" method of teaching; and from personal experience he favors the English system of clinical clerkships and dresserships as the most feasible, practical and thorough for the development of medical teachings. He referred to the question of Dominion registration and pointed out two serious objections to Dr. Roddick's Bill: 1, the great number of the representatives of the council, entailing expenses beyond, at least, our immediate resources; and 2, the fact that one of the contracting parties to Dominion registration may secede and the elaborate fabric, the work of many years, tumble to the ground.

Dominion Registration.

DR. T. G. RODDICK, of Montreal, who has so long and so ably advocated this much-to-be-desired measure, ably reviewed the subject of Inter-Provincial registration from the time of its inception to the introduction of his Bill at the last session of the House of Commons. The special committee appointed on this subject had not yet reported, so the discussion was postponed until that committee had a chance to meet and report later on in the session. Dr. Roddick now seems to hold to the opinion that the suggestion of Dr. Britton of Toronto, that representation by population, for Ontario at least, would be advisable.

Infectious Pneumonia.

DR. W. S. MUIR, Truro, Nova Scotia, reported four cases, all of which had occurred between April 1 and 13 of this year, in the same house and in the same family. The first occurred in a child of 10 years, the disease terminating by crisis on the sixth day, the child making a good recovery. A sister, age 14 years, contracted the disease; terminated by crisis on the ninth day, but followed two days after by left-sided pleuro-pneumonia. This proved fatal. The third occurred in a sister of 15 years of age, beginning with a pain on the left side and terminating on the tenth day by crisis and recovery. Number four developed pneumonia, but recovery was quick, the patient being about in two weeks. There was no influenza in the town at the time.

President's Address.

DR. H. H. CHOWN referred to the work performed in Winnipeg for the purpose of making that city a healthy one, and in spite of the level nature of the land, an excellent system of sewers had been introduced through all the streets; and efficient arrangements had been made for regular flushing of the sewers by means of tilting basins at the upper end of each main sewer. As Winnipeg has two rivers at her door the problem of removing sewage was easily and safely solved. Dr. Chown then referred to the question of tuberculosis and thought that Koch's tentative denial of the oneness of tuberculosis of man and cattle still needs the proof of non-inoculability from cattle to man. He instanced cases of young farmers free from tuberculous taint living in newly-built houses harboring no bacilli and separated by long distances from their neighbors, in whom tuberculosis constantly makes its appearance; and we have here an experiment on a wide scale, and if you can eliminate heredity, house infection and contagion from other cases, to what cause can you describe the origin of these outbreaks?

Epidemic Cerebrospinal Meningitis.

DR. JAMES MCKENTY, Gretna, Manitoba, presented this paper, which gave an account of an epidemic occurring in North Dakota during the winter and spring of 1893, within an area extending 50 by 20 miles and was comparatively definitely lim-

ited. About 70 persons were seriously ill, and almost as many others suffered from mild manifestations of the disease. Of the 70 cases 25 ended fatally, a mortality of about 35 per cent. In the practice of Dr. McKenty there occurred some 30 cases, a brief record of 22 of these being kept. The average age was 17 years; the youngest fifteen months; the oldest 38 years. The duration of the illness extended from twelve hours to fifteen weeks. No postmortem was made in any case. Dr. McKenty then described in detail the clinical aspects of several cases.

Splenic Anemia, with Case.

DR. A. J. MACDONNELL, Winnipeg, contributed this paper, with the history of the case. In 1898 the number of cases recorded did not exceed thirty, but since that time there have been fifty additional cases reported. Patient aged 27 years; born and lived all his life in Manitoba; family history good; environment good; has never had malaria; habits and mode of life good; positively never had syphilis. The present illness began in August, 1899. Felt heavy on the right side, with a feeling of fulness and weight. In January, 1900, gave up work on account of muscular weakness. There was no vomiting. The patient consulted Dr. Macdonnell in March, 1900, walking into his office with considerable difficulty. There was no enlargement of lymphatic glands. Enlargement of the stomach could never be percussed or palpated. Liver dulness was practically normal. There was no jaundice or pain in the liver region. The patient succumbed to the disease, but no postmortem was held.

Report of Cases Treated with Super-Heated Dry Air.

DR. W. H. PEPLER of Toronto briefly described the apparatus and the method of treatment. It only takes twenty minutes to reach a heat of 300 degrees F. The average duration of the application of the heat is forty-five minutes. The physiological and therapeutical effects noticed were referred to, as dilatation of blood vessels, etc. He administers the treatment one hour after meal time, with due regard that there shall be as little excitement and exertion as possible. He has not seen any ill effects from the treatment. He first gave notes of the case of a patient, a man aged 35 years, who had suffered for some time from varicose ulcer of the right leg, with considerable pain. This patient had a treatment of thirty-five minutes' duration and was able to walk home with very little discomfort. After three times, in ten days, the ulcer was very much reduced in size. The second case was a patient, 22 years of age, who had been troubled with rheumatism for two years past. A temperature of 320 degrees was employed with good satisfaction. Several cases of rheumatism and eczema were reported. The treatment in each case proved highly satisfactory, patients never complaining of any discomfitures and all expressing satisfaction with the treatment. Dr. Pepler subjects a considerable portion of the patient's body from a temperature of 280 to 320 degrees F. The results are often not apparent for some time after treatment.

Orthopedic Treatment of Deformities and Disabilities Resulting from Diseases of the Nervous System.

DR. B. E. MCKENZIE of Toronto spoke of disabilities and deformities resulting from paralysis, some of which were commonly regarded as hopeless; but the conditions of a great majority of them were remediable and should receive a considerable amount of attention. He was at some pains to explain the respective motion of joints, particularly the ankle joint and knee joint, especially calling attention to the normal conditions of equilibrium, and then showed how the muscles of some of the groups at times become paralyzed and the balance and equilibrium thereby destroyed. Mechanical treatment was often necessary and often efficacious as well; massage and electricity had their respective places, but he made particular reference to the method of treatment that had been in vogue for twenty years and had been introduced on this continent by Dr. Parish of Philadelphia.

Mild Smallpox.

DR. G. A. KENNEDY, McLeod, Alberta, dealt with the recent outbreak of the disease in the Northwest Territory, an outbreak which was widespread and which had existed for some time before its true nature was recognized. Dr. Patterson, Quarantine Officer for the Dominion Government, was satisfied that there had been 1500 cases. A noteworthy fact was that the greatest number of cases occurred among the French halfbreeds, who had never been vaccinated, and, further, Indians on reserves had not suffered to any great extent, as annual vaccination is the rule. Fifty per cent. of all cases were extremely mild in character; 40 per cent. were cases of typical varioloid; 10 per cent. were severe, almost confluent. The mortality was slight, only thirteen deaths occurring; and the disease prevailed fully as much amongst adults as amongst children.

At the close of this discussion the following resolution was moved by Dr. R. S. Thornton, seconded by Dr. J. L. Bray, and unanimously adopted: "Resolved, That in view of the general prevalence of smallpox throughout the continent, this Association desires to urge upon the profession and the public generally the necessity of vaccination and re-vaccination."

Chronic Ulceration of the Stomach Simulating Cancerous Disease.

DR. J. F. W. ROSS, Toronto, described the case of a woman of 20 years of age, the condition of whose stomach had been bad for three years. She was a nurse in the training school of a hospital and her gastric conditions grew gradually worse. Dr. Ross was asked to see the patient by Dr. E. B. O'Reilly, Hamilton, in December, 1899. He found her emaciated with the opium habit already formed. In January, 1900, rectal alimentation was being persevered in with considerable benefit. In March, 1900, she was discharged from the hospital and remained well for two weeks. As soon as food passed into the stomach great rigidity of the right rectus muscle was noted. When the patient came under Dr. Ross's attention she weighed about 75 pounds. As malignant disease of the stomach is rare at this age of life, it was difficult to diagnose the tumor as such, and the symptoms pointed to the pyloric end of the stomach. It was not possible to say whether cancerous or not. The symptoms pointed to the presence of ulcer, but the thickening easily made out led to the belief that malignant disease had been grafted on to the ulceration. Some dilatation also could be made out, but the rhythmic muscle waves so characteristic of pyloric obstruction could not be found; but large growth was found at the pyloric end. The case was looked upon as hopeless and decision was arrived at not to remove the growth, but to give temporary relief by gastro-enterostomy. This was done and the patient made an uninterrupted convalescence. Eleven months after the operation the patient weighed 140 pounds and looked the picture of health. On examination of the abdomen no mass could be felt and the patient was not suffering from any gastric symptoms at all.

Medical Defense.

The report of the Committee on Medical Defense was here presented by W. S. Muir of Truro, Nova Scotia. It reported favorably on the formation of a Medical Union, and the organization thereof was immediately perfected. It will be known as the Medical Protective Association, will be incorporated, and will have for its object the protection of the character and interests of medical practitioners in Canada. It will further promote honorable practice, will aid in suppressing or prosecuting unauthorized practitioners, and will seek to advise and defend or assist in defending members in cases where proceedings involving questions of professional principle or otherwise are brought against them and other like matters. Dr. R. W. Powell of Ottawa was elected president; Dr. McKinnon of Ottawa, secretary, and Dr. James Grant, Jr., of Ottawa, treasurer.

Report of Committee on Dominion Registration.

It is proposed to secure an amendment to the B. N. A. Act, or, to take advantage of section 91 of that Act, and under it obtain legislation from the Dominion parliament, by which the profession in Canada might form a Dominion Council

which could be supplemented by legislation by the various provinces recognizing any certificate of standing issued by the Dominion Council as entitling a holder to practice in such provinces. Dr. Muir approved of Dominion registration and spoke for the province of Nova Scotia. Dr. Jones voiced the sentiments of the profession for Manitoba. Drs. A. A. McDonald and J. L. Bray endorsed the scheme for Ontario. Dr. Russell Thomas spoke for Quebec. Dr. Christie said that New Brunswick was in favor of Dominion registration. Dr. Lafferty said the Northwest Territories were favorable.

Varieties and Distribution of Bacillus Diphtheriae and Their Clinical Significance.

DR. F. F. WESTBROOK of the University of Minnesota presented a paper on this subject, primarily from the laboratory point of view. He exhibited a carefully prepared chart showing in tabulated form the results of numerous examinations in schools and stated the conclusions which he deducted from these facts. Formerly, it was believed that the bacillus remained localized at its point of entrance, but now within recent years, however, careful observations have shown that the toxins had been distributed throughout the body and the bacillus itself found in organs far removed from the atrium. From evidences of 230 cases of diphtheria at autopsy, observers had called attention to the frequency with which the bacillus of diphtheria was found in the organs of the body. The bacillus and its toxins have been shown to be capable of producing lesions which differ greatly from each other, as in ulcerative endocarditis, meningitis, etc.

Hairy Tumor from the Stomach Weighing 23 Ounces. Specimen. Recovery.

DR. H. A. BRUCE, Toronto, described this case, a woman aged 26; she had been married six years and had two children. A lump was noticed in the abdomen two months previous to the birth of the last child. Patient had no symptoms. The lump was about 5 inches in width and it could be lifted forwards. It reached to within 3 inches below the umbilicus. It gave the patient no special discomfort, there being absolutely no symptoms present. Dr. Bruce advised exploratory incision. This was done on July 22 last at St. John's Hospital, Toronto. On opening the abdomen in the middle line the spleen and kidneys were found in a normal condition, but there was a large mass in the neighborhood of the stomach. The surgeon could make out the mass lying free in the stomach, a portion extending through the pyloric end of the stomach. An incision was made into the stomach and the tumor removed. After removing the mass of hair, the opening of the stomach was closed in the usual way. Hot salt solution was given for two hours and nutrient enemata for six hours. Twenty-three hours after the operation sips of hot water were given by the mouth. Forty-eight hours after operation patient was given one-half ounce of milk and lime water every hour. She left the hospital on the twentieth day. The tumor was entirely of hair exactly the same color throughout, and the same color as the hair on her head. It was about 24 inches in length, being about 2 inches in diameter at one end and gradually tapering down to a point at the other. Dr. Bruce offered no solution as to how the hair got into the stomach. There were no evidences of hysteria present in the patient. There are some specimens of hairy tumors in the McGill Museum at Montreal.

Case of Transplantation of the Ureter for Cure of Utero-Vaginal Fistula.

DR. A. LAPTHORN SMITH, Montreal, related the case of a married woman, 34 years of age, who came to him on July 1, 1901. During parturition, forceps were employed and the vagina lacerated and ever since there has been a constant flow of urine by the vagina. Operations for her relief had been performed in England without success. Dr. Smith had seen Sanger perform an operation of this character in Leipsic when he was there three years ago, namely, to open the peritoneum running over the large vessels at the brim of the pelvis and to feel for the artery, see the vein and pick up the third tube, which was the ureter. The operation was done in the highest Trendelenburg posture. A very small incision was made in the peritoneum lining the pelvis in the line of the ureter, a silk ligature was passed around it and then the ureter was severed a little above the ligature. The end of the ureter was split open to a distance of a third of an inch. A slit was then made obliquely into the right upper corner of the bladder and the ureter stitched into it, the mucous membrane of the ureter to the mucous membrane of the bladder with very fine chromicized catgut. This is the first time this operation has been done in Canada, and Dr. Smith stated that not a drop of urine had passed through the fistula since.

Syphilis as Seen by the Ophthalmic Surgeon.

DR. F. BULLER, Montreal, said that it often falls to the lot of the ophthalmic surgeon to discover the presence of active syphilitic virus where the disease had long been considered cured, or that the subject cherished the belief that there was no more to fear from it. The ophthalmic surgeon is scarcely, if ever, called upon to treat the disease in the primary stage. The largest share of his work is in connection with the tertiary period, and in this class of cases the disease has been apparently cured for a long period of time. Discussing medication, Dr. Buller does not believe that the protiodid of mercury, at least as ordinarily administered, is a reliable anti-syphilitic. He appears to favor the inunction method first and then gray powder.

The Present Outbreak of Smallpox in America.

DR. H. M. BRACKEN, Minnesota, outlined the origin and traced the course of many outbreaks in various parts of the state of Minnesota, with a total of 9429 cases, and the disease has still many centers in that state. It is impossible to locate positively the source of the present widespread epidemic farther than that it spread from the Southern and Southwestern states into North Dakota, Minnesota, Nebraska and Montana. He suggested that it was probably imported into the United States by Cuban refugees before war broke out. Vaccine was frequently spoilt by not being kept in proper temperatures, as it was frequently being shipped in cans which were too hot and subsequently kept in warm offices. The health commissioner of Minneapolis kept all his vaccine in an ice-box, but, of course, not frozen, and had obtained good results. Replying to a question in regard to isolation Dr. Bracken favored eighteen days' quarantine.

Necessity of a Recognition and Isolation of Trachomatous Patients in Canada.

DR. W. GORDON M. BYERS, Montreal, in his paper, recited the history of a young girl from Glengary county, Ontario, who came to the clinic at the Royal Victoria Hospital, Montreal, with a most intense condition of granular lids. She had been unable to open her eyes properly for months past, and her vision was reduced to the counting of fingers. The seriousness of her disease had not been recognized at home, as she mixed freely with other members of the community. Another case was referred to in the County of Leeds, and in this case as well no precautions had ever been taken to prevent the spread of the disease. Dr. Byers believes that there are many unrecognized and untreated cases scattered here and there throughout the Dominion. The disease is said to be prevalent in districts of Manitoba and certain centers in the eastern counties of Ontario and others in Quebec. The trachoma problem has had to be faced by one government in Europe, and the matter has been brought to the attention of the Dominion government, which has not yet taken any action in the matter. Dr. Monti zambert stated that the question of exclusion of trachomatous immigrants had been under consideration by the government for some time. He considered these people somewhat undesirable immigrants.

On the Treatment of Typhoid Fever.

DR. J. L. BRAY of Chatham discussed this subject under medicinal, dietetic and hygienic headings. The first he thought might be eliminated except in cases where complications arise, and he thought a certain amount of medicinal treatment useful during the initiary stages. He was in the habit of em-

ploying calomel. Tympanites could be avoided to a great extent by a proper diet. In feeding he now gives very little milk, but that little always peptonized. He believes in making the patient drink two or three quarts of pure water in the twenty-four hours. Albumin water with sugar may be given from the first; after the first two weeks he gives liquid peptonoids, or some of the numerous preparations of beef, jellies, mutton broth or a soft-boiled egg.

The Address in Surgery.

DR. O. M. JONES, Victoria, B. C., opened his address with a reference to surgical diseases in Western Canada as compared with those in the East, and stated that he had often found Western sufferers more impatient, which often demanded severer methods.

A Surgical Procedure for the Relief of Ovarian-Tension Pain.

DR. HENRY HOWITT, Guelph, Ontario, read this paper. Is not pain frequently, if not usually, caused by tension on some nerve filament? In Dr. Howitt's opinion the answer should be in the affirmative. The operation Dr. Howitt employs is quite simple. The ovary is exposed and then a number of cross-sections are quickly made through the tense capsule in such a manner as to divide it. Then the larger Graffian follicles are opened. These are merely touched with carbolic acid. If the capsule is thickened a portion should be removed. Hemorrhage has never been troublesome. Adhesions give rise to no complications. Dr. Howitt recited the histories of two or three cases in support of the operation.

Symposium on Tuberculosis.

PROF. RUSSELL of the University of Wisconsin introduced this subject in a paper on human and bovine tuberculosis and their inter-relation. The rapid extension of the disease among cattle within the last few decades has forced upon breeders and dairymen the necessity of considering this subject whether they desire it or not. It is customary in many quarters, even yet, to decry all consideration of this matter as unnecessary, inexpedient, and harmful to the dairy interests. But as is too frequently the case, the motive for such action rests upon a financial foundation, and many breeders are averse to a calm, judicious discussion of the matter simply because it may mean financial loss to them.

The slow, insidious nature of the disease that characterizes it in the human is also to be found in the cattle, and not infrequently an animal may be infected with the seeds of the disease for a considerable time—even a year or so—without showing in any degree physical symptoms that are manifest to even the animal expert. Such animals are not diseased in the ordinary term, i. e., they are not capable of transmitting the disease, either directly or indirectly, through their milk supply or meat. The affection in such cases is latent, generally confined to various lymphatic glands; but animals so affected are, however, potentially dangerous, for the latency of the disease may be overcome through the operation of various factors, and the chronic type may thus be awakened into an acute phase. It is in this way that the disease spreads slowly and unperceived through a herd. Before it has made such inroads as to cause actual death of any considerable number of animals, many more have acquired the trouble, at least in the earlier phases. Necessity of controlling its spread and eradicating it is evident for the sake of the herd itself, if from no other point of view.

DR. A. J. RICHER of Monreal contributed to the next paper on the "Sanitarium Treatment of Tuberculosis." The treatment is made up of rest, outdoor life, overfeeding and medical supervision. This latter was described as the keynote to success in phthisical treatment. Overfeeding was also emphasized.

DR. GILBERT GORDON of Toronto referred to the "Etiology and the Early Diagnosis of Pulmonary Tuberculosis." He spoke of the early stages of the disease, and thought that we ought to be able to diagnose it before the appearance of the bacilli in the sputum. Direct inheritance he considers very rare. The inhalation of dried sputum is the most direct cause. Dr. Gordon considered that people are woefully behind in Canada in fighting this plague, and more money should be spent by governments and philanthropic individuals in fighting this disease. He went carefully into the symptoms of the pre-tubercular stage and considered that a persistent cough was a very dangerous symptom.

Election of Officers.

These officers were elected for the ensuing year: President, F. J. Shepherd, Montreal; vice presidents: For Prince Edward Island, S. R. Jenkins, Charlottetown; for Nova Scotia, T. F. Macdonald, Hopewell; for New Brunswick, Wm. Christie, St. John; for Quebec, J. Alex. Hutchison; for Ontario, Bruce L. Riordan, Toronto; for Manitoba, A. J. Macdonnell, Winnipeg; for Northwest Territories, H. G. McKid, Calgary; for British Columbia, J. M. Lefevre, Vancouver; general secretary, George Elliott, Toronto; treasurer, H. B. Small, Ottawa. Montreal was selected as the next place of meeting.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment will be answered in these columns.]

Acne Vulgaris (Blackheads).

According to Dr. E. M. Alger, in *New York Med. Times*, the choice of a local application in the treatment of the foregoing depends largely upon the condition present. Where blackheads are numerous and but few pustules are present the following is recommended by him:

℞. Hydrarg. bichloridi ..... gr. ii | 12
Resorcin ..... ʒiss | 6
Aq. rosæ q. s. ad ..... ℥iv | 128

M. Sig.: Apply to the face several times daily.

The above should be applied often enough to cause considerable exfoliation of the epidermis, without producing inflammation of the true skin to any extent.

In cases where pustulation is the important feature for treatment, he regards sulphur as far more useful than resorcin. He, under such circumstances, advices the following, the strength of which may be varied to suit the conditions in each individual case:

℞. Sodii hyposulph. ..... ʒiv | 16
Sulphuris ..... ʒi | 4
Aq. rosæ ..... ℥iv | 128

M. Sig.: Apply externally as desired.

Caution is given not to use the bichlorid and the sulphur on the skin at the same time. He further states that individual lesions can often be aborted in their infancy by passing into the follicle a blunted needle dipped in carbolic acid, or by painting with pure ichthyol over night. If after this treatment the skin remains rough and dry the following should be applied:

℞. Resorcin ..... gr. xx | 1
Olei theobrom ..... ʒi | 32 | 33

M. Sig.: Apply locally at night.

Salve to Remove Corns.

The following combination in the form of a salve is recommended for the removal of corns:

℞. Pulv. plumbi acetatis
Pulv. myrrhæ
Pulv. camphoræ
Plumbi oxidi āā ..... ʒi | 4
Olei olivæ
Petrolati āā q. s. to make paste.

Misce. Sig.: For local application; or:

℞. Acidi salicylici ..... ʒss | 2
Acidi lactici ..... ʒss | 2
Ext. cannabis indicæ ..... ʒiv | 16

M. Sig.: Use as a local application in treatment of corns.

Treatment of Scarlatinal Nephritis.

Dr. Charles G. Kerley, as noted in *Med. News*, states that every case of scarlatina, whether mild or severe, ought to be treated as if nephritis were to be expected. A child with scarlet fever is to be considered ill for five or six weeks, even if no complications are present. The nephritis, if present, is too often overtreated by the physician. He deprecates the heroic use of drugs like digitalis and pilocarpin, which are too often indiscriminately prescribed, as well as irritant cathartics and the diuretic salts of potassium. He recommends, first of all, a light diet, the relief of constipation with small doses of calomel; small doses of aconite, ¼ minim of the tincture every two hours to a child of 3 years, to promote diaphoresis and diuresis. He also recommends colonic flushings, employing the normal saline solution at a temperature of 110 F. A child of 3 years should be given 16 to 24 ounces of the solution, to be retained and repeated every six or eight hours. The child should be kept in bed until the urine has been normal for two weeks.

Camphor in the Treatment of Varicose Ulcers.

Attention has been called to the value of camphor dressings in promoting cicatrization of varicose ulcers of the legs by the *Med. Press;* especially is this dressing adaptable in ulcers which are very refractory to treatment. An ointment made up similar to the following is recommended: .

R.	Pulv. camphoræ	gr. v	30
	Zinci oxidi	gr. l	3 30
	Adipis q. s. ad	ʒiv	16

M. Sig.: Apply locally.

If this should be found to be too irritating the following should be applied in its stead:

R.	Camphoræ	gr. vi	36
	Zinci oxidi	ʒii	8
	Olei olivæ	ʒiiss	10

M. Sig.: Apply locally.

An alternative application is a solution of camphor in spirit, but this should be applied only after the ulcerated surface has been thoroughly cleaned of scabs and crusts by poultices. It is asserted that complete healing of the ulcer will take place within three weeks.

For the Obstinate Diarrhea of Tuberculosis.

The following combination containing ichthoform is recommended in the treatment of tubercular diarrhea:

R.	Ichthoformi	gr. v	33
	Tannalbin	gr. x	66
	Bismuthi subgal.	gr. x	66
	Codeinæ	gr. ¼	015
	Olei menth. pip.	m. ¼	015

M. Ft. Chart. No. i. Sig.: One such powder every two to six hours.

Treatment of Cystitis.

Howland, in *Med. News*, states that cystitis is always caused by the presence of micro-organisms, chiefly the colon bacillus, streptococcus pyogenes and staphylococcus pyogenes. In the treatment of acute cystitis, he advises rest in bed, the use of opium and belladonna, either by the mouth or in the form of a suppository. In severe cases he instils into the deep urethra a few drops of a 4 per cent. solution of cocain. He does not recommend any local treatment to the bladder. In the chronic form he irrigates the bladder daily with solutions of salicylic acid, nitrates of silver or mercury bichlorid. Internally he employs urotropin in 7-grain doses as an antiseptic.

Alcohol Compresses in Appendicitis.

Prof. Filatoff, in *Rev. de Ther.*, has used with success alcohol compresses in appendicitis. A gauze compress folded four times and large enough to cover the whole abdomen is soaked in a 95 per cent. solution of alcohol and lightly squeezed before being applied to the abdomen. When applied, a piece of flannel should cover the gauze and an ice bag placed over this. The gauze compress should be changed when the alcohol has evaporated. Opium should be given internally at the same time.

Treatment of Acute Eczema.

Dr. R. Lederman, in *Kan. City Med. Rec.*, states that the best results are obtained by the free application of dusting powder during the erythematous and early papular stages. He considers zinc, bismuth, aluminum and dermatol as the best. For the itching he recommends a lotion similar to the following:

R.	Thymol	gr. i	06
	Aq. rosæ	ʒi	32

M. Sig.: Apply locally before using the dusting powder.

When crusts have formed he uses a paste of salicylic acid in olive oil or, what he considers even better, the following:

R.	Zinci oxidi	ʒss	2
	Bismuthi subnit.	ʒss	2
	Ung. aq. rosæ	ʒii	8
	Ung. simplicis	ʒii	8

M. Sig.: For local application.

For the chronic form, salicylic acid should be used in the form of an ointment of 5 or 10 per cent. strength.

Treatment of Acute Coryza.

The *Archiv. fur Laryngologie* recommends orthoform as a valuable drug in abating the symptoms and cutting short the attack. The following combination is used in the form of an insufflation:

R.	Orthoformi	ʒii	8
	Sodii-sozoiodol	ʒii	8

M. Sig.: Use in the form of an insufflation to cover the membranes of the nasal fossæ and posterior nares.

This should be repeated several times a day until the local symptoms have subsided. The effect of the orthoform is to produce a certain amount of anesthesia of the membranes and to reduce the congestion. In this way the local inflammation may be aborted. The sooner the treatment is begun the better.

Treatment of Paralysis Agitans.

The cure of paralysis agitans is hopeless, but Dr. R. L. Williamson, in *Med. Chronicle*, considers a number of methods he has tried for the relief of the more pronounced symptoms. He has found no virtue in any treatment by drugs, except in the use of hyoscin hydrobromate, duboisin sulphate and hyoscyamin hydrobromate. He recommends that the first of these preparations be used in doses not to exceed grain 1/150 each, dissolved in aqua chloroformi. The dose may be increased to 1/100 grain in some cases, when no toxic symptoms have appeared. If hyoscin fails to relieve the tremor he suggests the use of duboisin sulphate, which as a rule is not so efficient as the former.

The following is employed hypodermically by M. Bourneville in the treatment of paralysis agitans:

R.	Liq. potass. arsenitis	ʒii	8
	Glycerini (neutral)		
	Aq. destil. āā	ʒi	4

M. Sig.: Inject fifteen minims hypodermically.

Treatment of Tuberculous Peritonitis.

I. Burney Yeo, in *New York Med. Record*, states that he has seen good results follow the internal administration of iodoform gr. ¼ and creosote m. ½ and the application to the surface of the abdomen of an ointment as follows:

R.	Ung. iodoformi (10 per cent.)		
	Olei morrhuæ āā	ʒi	32

M. Sig.: Apply locally to the abdomen twice daily.

He states that the best results are obtained in the early stages and in those where there is more or less ascitic fluid. In the advanced chronic cases with induration of the various intestinal coats, adhesion of the coils of the bowel to each other, large caseous mesenteric glands, neither surgical nor medical treatment offer much. He believes, however, that if iodoform is rubbed into the skin of the abdomen in a young person, it rapidly enters the circulation and is eliminated and detected in the secretions including the secretions of the serous cavities and therefore reaches the location and seat of the tubercular deposit.

To allay the pain and irritation of the bowels a mixture containing the following was prescribed:

℞. Bismuthi salicylatis ..... gr. xv 1
Spts. chloroformi ..... m. xv 1
Tinct. card. comp. ..... ʒi 4
M. Sig.: At one dose to be repeated in six hours.

Treatment of Meningitis.

Dr. Daniel R. Brower, in an article on treatment of tuberculous meningitis, gives most satisfactory results obtained from the use of the following:

℞. Iodoformi ..... ʒi 4
Lanolini ..... ʒi 32
M. Ft. Ung. Sig.: Apply locally to the scalp.

Before applying this ointment the head must be closely shaved and the ointment thoroughly rubbed in, after which the ice-cap can be applied. The iodin reaction in the secretions can be obtained within a very few minutes after the ointment has been applied. His percentage of recoveries indicates that there is virtue in this method of treatment.

Medicolegal.

One Thousand Dollars for Breaking of Leg.—The Supreme Court of New Jersey holds, in the case of Wiezynski vs. the American Sugar Refining Company, that an award of $1000 for the breaking of the leg of an employee, a Pole, who was engaged in receiving bags of crude sugar thrown down to be loaded on trucks, was not unreasonable.

Twenty-Five Thousand Dollars Too Large an Award.—The Supreme Court of Mississippi holds it impossible to sustain a verdict for $25,000 in the appeal of the Cumberland Telephone & Telegraph Company vs. Pitchford. Here a lineman, 22 years of age, was thrown to the ground by coming into contact with a live wire while up a telephone pole. His spinal column was fractured, and he was paralyzed from the waist down. The attending physician stated that he found him in a condition of profound shock, and that he suffered considerably up to within 24 hours of his death, which occurred two weeks after the accident. The court holds $12,500 to be a sufficient amount of damages to allow in the case.

Data Required to Recover for Medical Services.—In St. Louis Southwestern Railway Company of Texas vs. Stonecypher, an action brought by the latter party to recover for personal injuries, it was averred that it had been necessary for him to incur an expense of $100 for doctors' bills and medical treatment; $40 to one physician named, and $60 to another, and that the amount charged by each of the physicians was a reasonable charge for the services. Exception was taken because the dates and place at which the alleged services were rendered were not also stated. But the Court of Civil Appeals of Texas sees no error in the overruling of the exception. It says that the party was suing for the amount that the company had caused him to pay for doctors' bills and medical treatment, and it was not incumbent upon him to more specifically set out his claim. He was not suing on account, where he had performed services at different times and places, but was suing for an amount that he was compelled to pay by reason of the company's negligence. The case would have been different had the doctor been suing to recover the amount of his bill. In such case it would have been necessary for him to have itemized his account.

Statements of Injured Persons as to Past Suffering.—The Court of Civil Appeals of Texas says, in St. Louis Southwestern Railway Company of Texas vs. Martin, that the declarations of a person suffering pain are admissible in evidence, but must be expressions or complaints made at the time, and the natural and instinctive manifestations of pain and suffering. But the same principle does not apply to statements made to an attending physician, because he testifies as an expert, and his opinion must be based upon data furnished him. Again, it says that statements made to a physician as to symptoms and past suffering are no more admissible as evidence in favor of the injured party in a personal injury case than if they had been made to some other person. They are only admissible for his information, in order to enable him to form an opinion. If they are made to him in the course of treatment, they come within the exception. But, when the physician has been employed by the plaintiff to make the examination for the purpose of testifying in the case, such statements, it holds, should not be admitted.

Liability for Injury of Property by Pest House.—The Court of Appeals of Kentucky holds, in City of Paducah vs. Allen, that, where a city or other municipality erects and maintains a public institution, such as a hospital for the treatment of smallpox or eruptive diseases, which, by reason of its nature, endangers the lives or health of the occupants of adjacent premises, as by subjecting them to contagious or infectious diseases, it is not only a nuisance, but it is such an invasion of the property rights of such adjacent holder or holders as amounts both to an injuring and a taking of property, under the provision of the state constitution which requires that just compensation must be made for private property taken, injured, or destroyed, for public use. The measure of damages to which an adjacent owner will be entitled, if the establishment of such a hospital or pest house is permanent, the court holds, will be the amount that the market value of his property is impaired thereby. Nor does the court consider that it will be rendered otherwise by the fact that medical witnesses testify that there is no actual danger of the disease being contracted by persons on such adjacent property. For example, it holds in this case that there was such an invasion of the property rights of an adjoining owner as to entitle him to recover for the depreciation of the market value of his property, although the hospital or pest house in question was located about 250 yards from his fence, and about one-half mile from his residence.

Board of Health Can Not Be Controlled by Injunction.—The Supreme Judicial Court of Massachusetts holds, in the case of Stone vs. Heath, that the board of health of a town can not be restrained, either under the general equity power vested in the Superior court, or otherwise, from entering on premises where it has adjudged that a nuisance exists, and abating the alleged nuisance, if the owners of the property do not abate it as ordered, and that it can not be restrained from instituting proceedings against such owners on account of their failure or neglect to comply with the order of abatement. The jurisdiction conferred by the statute, it says, is summary in its nature, and the objects to be attained by its exercise would be defeated in many, if not most, cases, if the orders of boards of health were subject to judicial examination and revision at the instance of parties affected by them before they could be carried into effect. The decision of the board of health is not, however, in such cases final and conclusive to all purposes in regard to the parties interested on the question whether the thing complained of was a nuisance. It establishes, for the time being, that there is a nuisance, and those who act under the orders of the board of health in abating it are protected thereby while engaged in the performance of the duty thus imposed. But they act at their peril if it turns out in subsequent proceedings that there was in fact and in law no nuisance. And the question whether there was a nuisance, or whether, if there was one, it was caused or maintained by the parties charged therewith, may be litigated by such parties in proceedings instituted against them to recover the expense of the abatement, or may be litigated by the parties whose property has been injured or destroyed in proceedings instituted by them to recover for such loss or damage, and may also be litigated by parties charged with causing or maintaining the nuisance in proceedings instituted against them for neglect or failure to comply with the orders of the board of health directing them to abate the same. A board of health having adjudged that a nuisance exists, the question of what influences or motives may have set the board in motion, the court holds, is immaterial.

Current Medical Literature.

Titles marked with an asterisk (*) are noted below.

Medical Record, August 31.

1 *Metastatic Choroiditis Occurring in the Course of Pneumonia, Due to Grippe. Based on a Study of Six Cases with Two Autopsies. Charles Stedman Bull.
2 *Protozoal Life in the Blood of Man and Animals, and Some of Its Evolutionary Phases in the Bodies of Suctorial Insects. M. P. Overholzer.
3 *Suggestions in Infant Feeding. Charles Gilmore Kerley.
4 *The Clinical Aspect of Acute Intestinal Obstruction. Howard Lilienthal.
5 *Remarks on the Scientist, the Practitioner, and the Antitoxin Treatment of Diphtheria. Adolph Rupp.

American Medicine, August 31.

6 Two Cases of Injury to the Diaphragm by Puncture Successfully Treated by Suturing. Transdiaphragmatic Suture of the Liver and Kidney. Carl Schlatter.
7 *Disease and Sin. George M. Gould.
8 *The Operative Treatment of Saddle-Nose, with Two Illustrative Cases. Emanuel J. Senn.
9 *Pulmonary Tuberculosis as an Insurance Problem. Chas. Lyman Greene.
10 *The Value of Antitoxin in Diphtheria. Walter R. Greiss.
11 The Treatment of Neurasthenia. W. Blair Stewart.
12 Report of a Case of Purpura Hemorrhagica. A. Hymanson.
13 The Medical History of Dr. Samuel Johnson. W. C. Cahall.

The Boston Medical and Surgical Journal, August 31.

14 The Treatment of Stricture of the Esophagus. Theodore Dunham.
15 *A Discussion of the Indications for Operation in Gastric Ulcer. Arthur T. Cabot.
16 *Cancer of the Intestine. Fred B. Lund.
17 *New Procedures in the Treatment of Hip Disease; Operative Dislocation and Drainage of the Acetabulum in Acetabular disease. E. H. Bradford.
18 An Apparent Case of Diphtheria Infection from Well Persons Carrying Diphtheria Bacilli. Franklin W. White.

Philadelphia Medical Journal, August 31.

19 *Sweat Baths and Baths that Increase Bodily Temperature. R. Friedlaender.
20 Traumatic Hysteria; Cranial Operation; An Interesting Pathological Condition; Recovery. Frank R. Fry.
21 The Use of Drugs in Pulmonary Tuberculosis. W. R. Huggard.
22 *The Inhalation of Formic Aldehyde as an Aid in the Open-Air Treatment of Pulmonary Tuberculosis. Crowry Muthu.
25 Slow Pulse, with Special Reference to Stokes-Adams Disease. Robert T. Edes.

New York Medical Journal, August 31.

24 *The Diagnosis, Etiology, Prophylaxis and Treatment of Cystitis, Pyelitis, and Pyelonephritis in Women. Thomas R. Brown.
25 *A Study of the Temperature, Pulse and Respiration in the Diagnosis and Prognosis of Certain Diseases of the Brain. J. T. Eskridge.
26 *The Esophagometer, or Intragastric Whistle—A New Device for Measuring the Length of the Esophagus in the Living. C. D. Spivak.
27 *Dupuytren's Contraction of the Palmar Fascia. Noble Smith.
28 *The Effect of Nasal Stenosis on the Throat, Ear and Organs at a Distance. W. Peyre Porcher.
29 *Atrophic Rhinitis in Its Purely Clinical Aspect. Carl Seiler.

St. Louis Medical Review, August 31.

30 Cutaneous Anthrax—Malignant Pustule—Report of Two Cases. J. M. G. Carter.
31 *Gastro-jejunostomy in Gastrectasis. A. H. Cordier.

Cincinnati Lancet-Clinic, August 31.

32 *Tracheal Injections. John A. Thompson.
33 Syphilis. George J. Monroe.

Medical News, August 31.

34 *Blood Examinations as an Aid to Surgical Diagnosis. Joseph C. Bloodgood, M.D.
35 *The Racial Factor in Hysteria. Julius Ullman, M.D.
36 The Drug Habit—Its Cause and Restrictions. Joseph M. Aiken, M.D.
37 Two Fatal Cases in Infants—Pemphigus and Erysipelas. Frank S. Meara, Ph.D., M.D.

Pacific Medical Journal (San Francisco), August.

38 Causes and Treatment of Habitual Constipation. Alfred W. Perry.
39 A Capital Sin of Modern Gonorrhea Therapeutics. V. G. Vecki.
40 *Medical Education in Japan. K. Ikeuchi.

Occidental Medical Times (Los Angeles), August.

41 *The Pathology and Bacteriology of Bubonic Plague. W. H. Kellogg.
42 The Surgical Treatment of Cervical Lymphadenitis. Charles G. Levison.
43 Puerperal Sepsis. John Life.

Charlotte Medical Journal, August.

44 A Case of Osteo-Arthritis of the Spine. Michael Hoke.
45 Chronic Interstitial Nephritis, with Report of an Atypical Case, and Autopsy. H. N. Rafferty.

Therapeutic Gazette (Detroit, Mich.), August 15.

46 *The Value of Veratrum Viride in Puerperal Eclampsia. J. Clifton Edgar, Richard C. Norris, Barton C. Hirst, Edward P. Davis, George M. Boyd, W. Reynolds Wilson, J. Whitridge Williams, and Edward Reynolds.
47 *The Use of Gelatin for Controlling Hemorrhage. Joseph Sailer.
48 *Remarks on the Use of Pilocarpin in the Treatment of Inflammations of the Interior of the Eye. Howard F. Hansell.
49 A New Method of Radical Cure of Hydrocele of the Tunica Vaginalis Testis. T. Hope Lewis.

American Practitioner and News (Louisville, Ky.), July 1.

50 *The President's Address, Kentucky State Medical Society. James H. Letcher.
51 Some Observations on Administration of Anesthetics. B. C. Frazier.

Johns Hopkins Hospital Reports (Baltimore), Vol. x.

52 Structure of the Malarial Parasites. Jesse W. Lazear, M.D.
53 *The Bacteriology of Cystitis, Pyelitis and Pyelonephritis in Women, with a Consideration of the Accessory Etiological Factors in these Conditions, and of the Various Chemical and Microscopical Questions Involved. Thomas R. Brown.
54 *Cases of Infection with Strongyloides Intestinalis (first Reported Occurrence in North America). Richard P. Strong.

Colorado Medical Journal (Denver), July.

55 The Necessity for Post-Graduate Instruction in Sanitary Science: Psychopathic Cults of Healing and Worship. William P. Munn.
56 Hysterectomy for Fibroid Tumor and Ventro-suspension of the Stump for Bladder Prolapse and Urinary Incontinence Due to Symphysiotomy and Extensive Laceration of the Anterior Vagina and Neck of the Bladder. H. G. Wetherill.

Medical Fortnightly (St. Louis), August 26.

57 Quackery. James E. Free.
58 Angioneuroses. Frank Parsons Norbury.
59 Diseases of the Stomach. (Continued.) J. M. G. Carter.
60 Diagnosis in Diseases of Infancy. John Zahorsky.
61 *The Relation of the Medical Editor to Original Communications. Harold N. Moyer.

Journal of Cutaneous and Genito-Urinary Diseases (N. Y.), September.

62 Six Cases of Bullous Dermatitis Following Vaccination, and Resembling Dermatitis Herpetiformis. John T. Bowen.
63 On a Case of Parakeratosis Variegata. T. Colcott Fox and J. M. H. MacLeod.

Canadian Journal of Medicine and Surgery (Toronto), September.

64 Address in Surgery, Maritime Medical Association. A. Primrose.
65 Pulmonary Tuberculosis: Its Treatment in Special Sanatoria. J. H. Elliott.
66 The Outdoor Treatment of Sick People. George H. Carveth.
67 The Relation of Nasal Obstruction to Obscure Cases of Asthma. Arthur W. Maybury.
68 A Rare Variation in Phalanges of Hands and Feet. Frederick Winnett.

Annals of Gynecology and Pediatry (Boston), August.

69 Address Delivered May 17, 1901, at the Annual Meeting of the New Hampshire Medical Society by the Retiring President, William T. Smith, M.D.
70 *Malignant Neoplasms. D. M. Currier.
71 Preventive Medicine. Loren A. Sanders.

Kansas City Medical Index-Lancet, September.

72 Hernia and Its Treatment—Reducible, Incarcerated and Strangulated. Herman E. Pearse.
73 Annual Address, North Missouri Medical Association. J. Franklin Welch.
74 Some Practical Points from My Experience in the Treatment of Diseases of Children. John W. Kyger.
75 Legitimate Proprietary Medicines. R. W. Gardner.
76 The Treatment of Acute Insanities. John Punton.

Medical Herald (St. Joseph, Mo.), August.

77 Legal Sanitation or Some Errors and Shortcomings of Attempted Medical Legislation. John D. Seba.
78 A Consideration of Some Methods of Treating Epilepsy. W. J. Alexander.
79 Epidemic Influenza. H. E. W. Barnes.
80 Some Neglected Symptoms of Non-Surgical Gynecology. John A. Hale.

Hot Springs Medical Journal, August.

81 Two Cases of Urethral Stricture. St. Cloud Cooper.
82 Tubo-ovarian Abscess, and How Best to Deal with It. Edwin Ricketts.

American Gynecological and Obstetrical Journal (N. Y.), August.

83 *Treatment of Puerperal Eclampsia. O. A. Gordon.
84 *The Treatment of Retroflexions of Mobile Uteri. George Gellhorn.
85 Indications for the Treatment of Posterior Displacement of the Uterus. Augustus P. Clarke.
86 *Operation for Cystocele. Emerson M. Sutton.
87 *Some of the Uses of Electricity in Gynecology. W. H. Walling.
88 *Gold-Beater's Skin Court-Plaster as a Dressing for Operative Wounds. Edgar A. Day.
89 *The Dry Method in Surgery. Edwin Walker.
90 Cancer of the Uterus. W. O. Henry.

Canada Lancet (Toronto), August.

91 Normal Vaccination. H. R. Frank.
92 A Case of Advanced Arteriosclerosis in a Child. Allen Baines.
93 An Anesthetic Chart. Charles O'Reilly.
94 The Bromid Sleep. Arthur A. Small.
95 A Peculiar Case of Mastoiditis. Chas. Trow.

The American Journal of Insanity, July.

96 *An Anthropological Study of the Small Brain of Civilized Man and Its Evolution. Chas. E. Woodruff.
97 Presidential Address, Delivered at the Annual Meeting of the American Medico-Psychological Association, Held at Milwaukee, Wis., June 11-14, 1901. P. M. Wise.
98 Cerebral Hemiatrophy in an Adult, with Hemiplegia and Aphasia. A. L. Harrington and W. L. Worcester.
99 *Dispensary Treatment of Mental Disease. Walter Channing.
100 *A General View of Dementia Precox. Albert E. Brownrigg.
101 *Experience with Chloretone. Wm. Rush Dunton, Jr.
102 *Schools for the Insane. Francis M. Hamlin.
103 A Statistical Study of One Thousand Patients. Frederick L. Hills.

Clinical Journal (Chicago), September.

104 Fracture of the Humerus; Fracture of the Femur; Strangulated Inguinal Hernia. Edward H. Lee.
105 Clinical Lectures Upon the Etiology, Pathology, Diagnosis and Treatment of Tumors. A. H. Levings.

AMERICAN.

1. **Metastatic Choroiditis.**—The disease, as presented in the six cases here reported, is characterized by pain in the head and eyes, intense vascular congestion, and the usual symptoms of choroiditis and irido-choroiditis, and results in a rapid and total loss of sight. Severe headaches and fever may precede it, and the intraocular tension is at first increased, but subsequently sinks much below normal, even when no perforation of the eye-ball occurs. The course of the disease is from three to six weeks, and the prognosis is always bad, the case ending in total blindness with sunken eye-ball. Enucleation is not advisable in the acute stage, especially if Tenon's capsule and the orbital tissues are involved. Bull discusses the theories of this metastasis, especially referring to Goh's article on the subject, and he doubts whether the occurrence of metastatic ophthalmia signifies a particularly severe type of the general disease causing it, since as a symptom it has not the prognostic significance for the original condition that would, in such cases, be expected.

2. **Protozoal Life in the Blood.**—Overholzer reviews the various facts in regard to the appearance of the lower forms of animal life in human and other blood, with special reference to malaria. He makes the practical point that in his section of the country, the so-called intestinal colic of babies under six months and older, is often more benefited by quinin than by all the food modifications or remedies that have been suggested. He has no doubt but that in these cases microscopic examination of the blood would show the true etiological factor of the condition.

3. **Infant Feeding.**—The subject of infant feeding is discussed by Kerley, who criticises the use of set formulæ, as they do not make distinction as to the food strength in different seasons of the year. In the hot months the infant's digestive capacity is lessened. There is but one substitute for breast milk, and that is cow's milk, and the important point is to combine it in such a manner as to give the strength of fat, sugar and proteid normally found in mother's milk. He says: Beginning with the feeding of the child at birth, for the first three days one-half per cent. of sugar-water mixture is given; after the third day a milk mixture containing 1. of fat, .4 proteid, 4.5 sugar; after the tenth day 1.5 fat, .7 proteid, 5. sugar; after the twenty-first day 2. fat, .8 proteid, and 5. sugar. The increase is very gradual, so that when the average child is six months old he will receive .3 to 3.5 of fat, 1. to 1.5 of proteid, and 7. of sugar. A very weak strength is given at first, which is increased if the child thrives. The baby is weighed every two or three days, and the stools are examined daily for signs of indigestion. The fat, proteid, and sugar are independently increased or diminished as may be indicated by the stools and the condition of the patient. When this method of low feeding is followed at birth, it is, with very few exceptions, followed by success. The usual error is in beginning with too strong a mixture, and in inattention to the case. For aiding in the digestion of casein, two methods have their advocates. One is the peptonizing of the milk, and the other the use of cereals. The former in his hands is of no value except when completely peptonized milk is introduced directly into the stomach or rectum. Partially peptonized milk is an impossibility. Cereals he finds valuable as diluents and for the nutrition they furnish, but he has never been able to increase the proteids in a case of proteid incapacity. He gives details of the management of difficult cases and reports two cases of the rare condition of idiosyncrasy where cow's milk can not be borne at all.

4. **Intestinal Obstructions.**—This not infrequent condition is treated of by Lilienthal, who attributes part of its increase to the increased frequency of abdominal section, but thinks also that true ileus is often due to appendicitis. He cautions against mistaking the expulsion of air introduced by enema for the expulsion of flatus and suggests that the physician himself conduct the administration of the enema for this reason. Sudden abdominal cramp-like pain with vomiting but no fever, should be treated by enema and in the adult by a small dose of morphin (Treves). If permanent relief does not follow, the case is a suspicious one, and operation is indicated. The medical treatment of intestinal obstruction is safe no longer than until the diagnosis is made. After that, the earlier the operation, the better the chances. Some interesting recoveries, however, have been reported with the use of atropin, which may have its utility as an antispasmodic, and a tonic in paralytic obstruction. The suggestion of Vidal of the serum treatment is mentioned, but Lilienthal thinks that its utility must be limited to cases where operation has been already performed, and the symptoms have not subsided. This treatment should never supersede surgery. He advises washing out the stomach before the operation, and in desperate cases abstinence from general anesthesia. The incision should be small at first, and enlarged if necessary. If strangulation exists, it must be relieved before the patient leaves the table, and the possibility of more than one obstruction should be kept in mind. Enterostomy or colostomy should be performed when a prolonged operation would entail the gravest danger of death. In making an artificial anus, one must be sure that the opening is above the occlusion. Gangrenous intestines must be at once resected. When there is great distension of the small intestines, a number of small incisions opposite the mesentery should be made for evacuation of the gut, before searching for the obstruction. The author has practiced this for four years, and feels justified in continuing it. There is rarely, if ever, any advantage in the administration of a cathartic after the strangulation has been relieved. Surgery, and surgery alone, he believes can logically furnish relief in acute intestinal obstruction.

5. **Antitoxin.**—Rupp's article is an unfavorable criticism of the antitoxin therapy, which, he thinks, has a very limited utility.

7.—See JOURNAL, July 7, p. 135.

8. **Saddle-Nose.**—E. J. Senn prefers an external excision in the treatment of saddle-nose, refracturing the bones at a definite point, and removing any excess of callus in traumatic cases. He advises the following operation: A vertical excision one and a half to two inches in the middle line of the nose over the depression, carefully dissecting back the skin and soft structures. With a narrow chisel, the nasal bones are frac-

tured at the point where they join the nasal process of the superior maxillary, care being taken not to injure the mucous membrane. A Kocher director, covered with gauze, is now passed into each nostril alternately, the fragments mobilized and the nose molded into the proper shape. A straight needle, armed with a medium-sized silver wire, is passed through the nose transversely underneath the fragments. Lead discs are placed at each end. The wire is tightened and fixed on the discs, thus supporting the fragments, and also narrowing the nose to any desired degree. He suggests the use of cork instead of lead to avoid pressure necrosis. Next, rubber tubes of the desired caliber are placed in the nostrils to facilitate breathing and to act as an intra-nasal splint, retained by adhesive strips fastened to the cheek. A plastic splint is made to conform the new bridge, with hygroscopic gauze and plaster-of-Paris, molded to the nose and held there until it sets. It should reach from the root of the nose to the lower border of the nasal bones, and should be retained by adhesive strips. After the operation the patient should be watched carefully, the tubes frequently removed and the cavities cleansed. The silver wire should be removed at the end of five or six days, the tubes and casts in fifteen to eighteen days. He gives illustrative cases showing the success of the operation.

9. **Pulmonary Tuberculosis in Life Insurance.**—The following conclusions are offered by Greene: 1. The present requirements of a majority of our insurance companies and the usual methods of insurance examiners are not sufficient to exclude persons suffering from incipient or arrested tuberculosis. 2. Improper preparation of the patient is a fertile source of error, and should be covered by specific instructions and direct inquiry, as is now done in but few instances. 3. Light weight in an applicant should lead to a careful scrutiny in every case, and suggests an afternoon appointment for temperature determination. Many accepted as sound light weights are actually cases of incipient or arrested tuberculosis. 4. Heavy weights can not be accepted at their face value. 5. Recent loss of weight is suggestive and important. It is important that the "best" weight should be stated. No blank known to the writer contains the latter inquiry. 6. Hoarseness should arouse suspicion, and be met by postponement until recovery. 7. The determination of the body temperature is extremely important and its present neglect inexplicable. 8. The physical signs of tuberculosis are obscure and require skill and judgment, both in their detection and the weighing of their importance. The proper attitude, viz., demonstration of the normal, greatly simplifies matters. Hence: 9. A knowledge of the normal chest is all important. 10. Unilateral hyperresonance is as important as unilateral dulness, and absence of the normal breath sounds no less significant than the presence of abnormal sounds. 11. Broadly speaking, the examiner must rely more upon auscultation than percussion. No one sign available to the insurance examiner is pathognomonic, and hasty conclusions are deplorable and disastrous. 12. The tuberculin reaction and demonstration of tubercle bacilli in sputum are impracticable measures, save in the case of substandard lives. 13. Greater stress should be laid upon the question of direct infection, and specific questions in relation to environment should be inserted in every medical blank.

10. **Antitoxin in Diphtheria.**—The subject of antitoxin and its value in diphtheria is noted by Griess, who offers the following in conclusion: 1. Antitoxin should always be given as soon as the diagnosis is made with certainty. 2. Children require larger doses, as their natural resources for fighting disease are always less than those of adults. 3. In mild cases of diphtheria 2000 units should be given as an initial dose, and if no improvement takes place within 12 hours, it should be repeated. 4. All laryngeal cases, or cases in which prostration is severe, should have 4000 units as an initial dose, and 2000 units in 8 or 12 hours if there is no marked improvement. 5. Intubation in children should be practiced before the child becomes exhausted, and if it is not successful, no time should be lost in making a tracheotomy. Before performing either of these operations, however, a stimulant should be administered as the shock during these operations is very great. More than one child has been saved by a hypodermic injection of ether, injected when the patient was apparently dead, after the trachea had been opened; this, together with artificial respiration, caused the child to soon show signs of life. 6. The results to be expected from antitoxin depend especially upon two things: When used in the course of the disease (late or early), and in what type or class of cases it is employed.

15. **Gastric Ulcer.**—Cabot reviews the surgical treatment of gastric ulcer and its present status, which he states as follows: 1. Acute hemorrhages should rarely be treated by operation; the results of interference have not been good, while the results of medical treatment have been satisfactory. When, however, a hemorrhage frequently repeats itself, even if severe in amount, it will demand operative treatment as soon as its recurrent character is plain. 2. Small, frequent hemorrhages, threatening anemia, give a clear indication for operation. 3. Perforation of the stomach, either acute with general peritonitis, or chronic with surrounding adhesions and perigastritis, demands instant operation. 4. When an ulcer runs a chronic course with a strong tendency to recurrence, and gradually diminishes the patient's capacity for work and for the enjoyment of life, an operation is indicated, especially when the patient is so situated as to be dependent on his daily work for support and unable to closely regulate his diet.

16. **Intestinal Cancer.**—The operations indicated for intestinal cancer are stated by Lund as follows: Operation is indicated absolutely in all cases in which the tumor is suspected of being a cancer of the intestines after careful eliminative diagnosis. If a benign tumor or obstruction is found, so much the better. It is also indicated when the symptoms point to the possibility of stenosis, whether it is palpable or not. Exploratory operation is indicated whenever vague intestinal symptoms, associated with a loss of weight, in persons past middle life suggests intestinal cancer. Exceptions should be made of cases of general peritoneal metastases, hepatic cancer, etc., where no radical operation can be performed, and only palliative measures are suitable. In regard to the nature of the operation, this has to be determined in each individual case. Excision of the growth and immediate union of the ends of the bowel is the ideal.

17. **Hip Disease.**—A case of acetabular disease of the hip, in which amputation of the joint seemed indicated, but was refused, was treated by Bradford by throwing the head of the femur out of joint by an incision similar to that for excision and placing it on the dorsum of the ilium. A free incision was made, allowing drainage from the acetabulum, which was found perforated. A celluloid drainage tube one inch in diameter was inserted to a sufficient depth and secured by a stitch. The base of the acetabulum was touched with carbolic crystals and washed off with alcohol. The limb was fixed in flexion and adduction by a plaster-of-Paris spica. Marked improvement followed. Drainage was kept up for six months, and then the boy was allowed to go about. The tubercular osteitis of the acetabulum has been healed and a future operation may correct the present deformity.

19. **Sweat Baths, Etc.**—Friedlander has experimented on himself and others with various forms of sweat baths, and baths that increase bodily temperature, such as the Russian steam bath, and gives the indications for either variety as follows: He prefers temperature-increasing baths. 1. In combating infectious and toxic conditions. In acute and subacute diseases due to exposure, catarrh of the upper respiratory passages, fresh rheumatic affections of the muscles and joints, and also in other infections, the onset of which is not characterized by high fever and in which individual conditions render an increase of the fever permissible and desirable for the course of the pathological process. Furthermore in syphilis, and in a general gonorrheal infection. 2. When an intense increase of metabolism is indicated from other causes, such as autointoxication, and in conditions affecting metabolism, like gout.

On the other hand, he favors sweat baths: 1. When a cure by means of free diaphoresis is contemplated; in exudations and transudations, in nephritis with edema, in hydremia and chlorosis, in metallic poisoning, and in obesity as an adjunct to other methods of treatment. 2. When chronic inflammatory processes are to be influenced by peripheral hyperemia. In chronic and especially rheumatic affections of the muscles, joints and nerves, in the residual conditions of acute articular rheumatism, in chronic muscular rheumatism and arthritis deformans, in neuritides, and in tubercular arthritic affections.

22. **Formic Aldehyde in Tuberculosis.**—Formic aldehyde has been employed by Muthu in two ways, by the dry method, in which the tabloids are placed over a methylated spirit lamp and volatilized, and the moist method, in which, together with this, there is steam mixed with the formaldehyde vapor, rendering it more diffusible and efficacious. The gas is used either by suffusion throughout the atmosphere, or when in the aqueous solution, it is employed in an inhaler or nebulizer. He has used it with 15 patients from three to five months. Five, all men, were completely cured; seven, six men and one woman, were almost cured, that is, though the symptoms did not completely disappear, and a few bacilli remained, they have been able to go back to their former occupations, and have been in good general health; one, a woman, was slightly benefited, and in the remaining two there was no effect. Of the five who were completely restored, three had affection of one lung, one had a large cavity in one lung, and the other had marked signs of breaking down in both lungs. Of the seven nearly cured, two had cavities in one lung, and consolidation of the other; one had empyema complicating pulmonary tuberculosis, and the rest had more or less extensive affections of both lungs. He believes that the treatment should be given a fair trial in every sanitarium, systematically and persistently used by some one who is careful and enthusiastic.

24. **Cystitis Pyelitis and Pyelonephritis in Women.**—From a study of the pathology, bacteriology and symptoms of cystitis, pyelitis and pyelonephritis in women Brown comes to the following conclusions: 1. The great majority of cases of pyelitis, pyelonephritis, and cystitis are due to infection with various micro-organisms (of which the colon bacillus is the commonest) which may reach the kidney or bladder either exogenously or endogenously. 2. In the majority of cases the condition either can be prevented or can be cured if the conditions underlying its development are recognized and understood, and the correct measures inaugurated. 3. There are various conditions, such as urinary hyperacidity, which may simulate almost exactly true vesical infections, and yet in which misinterpretation and improper treatment may lead to the development of a true cystitis and its deplorable consequences. 4. In no condition is prophylaxis more essential than in that of the infections of the urinary tract, while to be able to prevent such conditions, we must have constantly before us the danger of the development of infection in all cases associated with conditions which tend to lower the general resistance of the patient, and also those which render the bladder susceptible to infection, especially by the trauma of an operation or catheterism. 5. While an absolute diagnosis of renal infection can be made only by ureteral catheterism, in the majority of cases a very probable diagnosis may be arrived at by a consideration of the relation between the grade of albuminuria and pyuria and by careful cystoscopic examination of the bladder, especially that portion about the ureteral orifices, and the character of the urine flowing therefrom. 6. Contrary to the opinion expressed in the majority of textbooks, a great majority of the infections both of the bladder and of the kidney are associated with acidity of the urine—that is, are due to micro-organisms which do not split up the urea. 7. Probably in the majority if not in all the cases of renal infection due to a urea-decomposing micro-organism, after the condition has lasted for a certain length of time, a stone is formed by the decomposition of the precipitated salts about the bacteria as a nucleus. 8. To be able to thoroughly understand the cases of cystitis, pyelitis, and pyelonephritis, to make the proper diagnosis to inaugurate and carry out a rational line of treatment, to be conversant with the proper means of prophylaxis, and to give a correct prognosis, a careful chemical, microscopical, and bacteriological study of the urine is absolutely essential. See also 53.

25. Eskridge's article is to be continued, and will be noted later.

26. **Esophagometer, or the Intragastric Whistle.**—After first noticing the variations of the estimates of the length of the esophagus and the position of the cardia, which are quite noticeable, Spivak gives his reasons for assuming a practical value in ascertaining these data. It is important to know how much rubber tubing should be allowed to enter the stomach in severe gastric lesions, and the diagnosis of gastrectasis and gastroptosis largely depends on the proper location of the cardia. He then describes his instrument, which consists of a stomach tube, provided at the proximal end with a whistle, which is inserted in such a way that the opening through which the air is blown in looks towards the distal end, and the opening at which the air makes its exit is in apposition with the side opening of the tube. The tube is introduced into the esophagus and air blown in. As long as the whistle traverses the esophagus, no sound is heard, but as soon as the cardia is reached, a distinct whistle is heard. In this way the exact length of the esophagus is ascertained. The advantages of the device are given as follows: 1. Precision in measurement not attainable by any of the other methods, except by that of Purjesz. 2. Cheapness. The materials necessary for manufacturing this instrument are a stomach tube, whistle, and a piece of thread. It does not take more than two minutes to insert and secure the whistle in the tube. 3. No special instrument is needed. It is an esophagometer only when used for the purpose of esophagometry. In the twinkling of an eye the component parts are separated and the stomach tube and whistle are ready for other uses.

27. **Dupuytren's Contraction of the Palmar Fascia.**—Noble Smith discusses the etiology of Dupuytren's contraction, and reports a case in which he believes he observed it in its very early stages. In a man aged fifty a small nodule developed subcutaneously at the base of the ring finger on the left hand. The first symptom was pain, and was followed by the characteristic slight contraction of the palmar fascia. There was no history of gout in the family, but a slight tendency to muscular rheumatism and to bilious attacks, so-called. A full dose of Pil. cathart. comp. U. S. P. was given, followed by relief of the pain and subsidence of the nodule. After several repetitions of the treatment it entirely disappeared and there has been no apparent tendency to recur.

28. **Nasal Stenosis.**—Porcher calls attention to the varied symptoms from nasal stenosis, and reports several cases of cough, deafness, abscess of the ear, etc., apparently relieved by nasal operation. He also refers to still more extraordinary reflex phenomena reported by Schiff and Comperz, already abstracted in THE JOURNAL.

29. **Atrophic Rhinitis.**—From his studies on the subject Seiler finds atrophic rhinitis most frequent in American-born males of Irish parents, next in Irish born, then Italian born, French and German, while the smallest contingent is furnished by the negro race. He also finds that occupation seems to have very little to do with its occurrence, excepting in special case of employes working in chemicals. The treatment which he finds best has been the removal of the dried secretions by gradual solution and loosening with liquid solvent, to which should be added some of the ethereal antiseptics, the formula for which is embodied in the Seiler antiseptic tablets. After removing the scabs and ozena, he employs the Goldstein cotton nasal plug, with the nitrate of silver and stearate of zinc.

31. **Gastrectasis.**—The deductions which Cordier draws from the study of the operative treatment of gastrectasis are that cancer of the pylorus, even though removed, returns quickly, and is always fatal and that pylorectomy is attended

by high mortality and is not a justifiable procedure in advanced pyloric carcinoma. Gastrectasis, due to a malignant closure of the pylorus, is best treated by gastro-jejunostomy, according to Woelfler's or Von Hacker's method. It is not necessary to twist the bowel in making the anastomosis to prevent the bile from entering the stomach. The anastomotic opening in the stomach should be at the most dependent point of the dilated organ. The operation is attended by a low mortality, and should be performed whenever marked dilatation of the stomach, with emaciation, pain and invalidism is present. Relief follows at once, and the patient gains in weight, and, if no malignant disease is present, is restored to former health.

32. **Tracheal Injection.**—Thompson has found special benefit from tracheal injections and has come to use them largely in his practice. The technic is as follows: The larynx is illuminated as usual. The patient holds his own tongue while the physician guides a properly curved laryngeal syringe back over the glottis. Then, while the patient takes a slow full inspiration, the medicine is injected between the cords and into the trachea. It is not necessary to touch any part of the larynx, and if the patient will follow directions, the operation is easy. It is only with a few who have very little self-control that this method is impossible. The advantages are the direct local action of the medicine, and its quick constitutional effect from being injected directly into the lungs. It also undergoes no chemical changes before it reaches the spot. He advises this method in the late stages of bronchitis, in chronic bronchitis, asthma, pulmonary emphysema and chronic inflammation of the trachea. The most effective medicines are those that are volatilized slowly by the temperature of the body, such as menthol, camphor, creosote and guaiacol carbonates and chlorophenol. He says the longer he employs the method, the greater is his opinion of its value.

34. **Blood Examinations.**—The value of blood examinations in surgical diagnosis, the leucocytosis of shock, and the necessity of a careful blood examination before general anesthesia are first noted by Bloodgood. The blood-count may enable us to detect and gauge a hemorrhage, and he finds that the dangers from an anesthetic are greatly increased with a hemoglobin estimate below 50 per cent. There is need of more study as regards post-operative leucocytosis; a sudden rise may indicate complications. The most certain value is in the early recognition of intestinal obstruction, in which there is always a rise of usually over 20,000. In a few cases of post-operative phlebitis there was a rise in the leucocytes ranging from 15,000 to 20,000. This has been frequently observed in typhoid phlebitis, but, on the whole, the observations of the changes in the leucocytes after operation are not well established. The principal theme of the paper, however, is the importance of the leucocyte-count in the early recognition of acute abdominal lesions, appendicitis, etc. A tabulated statement of the counts in different phases of the conditions, acute, chronic, abscess, etc., is given and several cases illustrating certain points are reported in detail. While there is need of more observations before definite conclusions can be reached, these are enough to make a careful surgeon insist on a blood-count in every case of acute abdominal lesion, and even every four to six hours during the first two days. He says, "A rapid rise in the leucocytes, especially above 18,000, should be a sufficient indication for exploration, even in those cases where the local symptoms are very slight. In the few exceptions in which the local symptoms are sufficiently distinct to indicate an operation, a low leucocytosis should not influence as to delay operation." The article concludes with remarks on the leucocytosis of intestinal obstruction and cholecystitis, in both of which there is a significant rise.

35. **Hysteria.**—Ullman recognizes a special susceptibility to hysteria in certain races, especially the Jews; the Latins and Slavs are also to be regarded as hysterical. It appears to be frequent in the negro, and under civilization is appearing in the North American Indians. He concludes that no race is free and its greater frequency in some is attributable rather to environment than to special racial peculiarity.

40. **Medical Education in Japan.**—The medical universities of Japan are described by Ikeuchi. The medical education is given in that country by the Tokyo and Kioto Imperial universities, the medical departments of the high schools in five provinces, the Kioto, Osaka, and Aichi provincial medical schools, and two private medical colleges. Besides these are the Naval and Army medical academies in Tokyo, which do not educate the student, but instruct the surgeon-probationers and surgeons who are put on service out of easy reach of the scientific world. The first two are government institutions with a medical course of four years, ample clinical advantages and post-graduate courses. The medical departments of the five high schools differ more or less. They also have four-year courses. He gives a summary of the physicians at present in Japan: 1. Graduates of the universities, 1514, with the title of Igakushi. 2. Graduates of the higher schools, 2329, with the title of Tokugyoshi. 3. Graduates of Saisei and Charity Hospital Medical Schools, 10,779, with the title of Eishi. 4. Those qualified in foreign medical schools, 94. 5. Practitioners before the present regulations went into force, and who received license without examination, 21,940. The first four classes are physicians who were educated under modern systems; the rest are Chinese physicians, including bonesetters, shampooers, administerers of acupuncture, etc. Therefore, in Japan, as he says, many physicians are really ignorant of modern medicine, and better medical education in Japan is demanded.

41. See abstract in JOURNAL, xxxvi, p. 1491.

46. **Veratrum Viride.**—This article is given up to the replies that have been received by the editor of the *Therapeutic Gazette* from various prominent obstetricians as to the value of veratrum viride in puerperal eclampsia. J. Clifton Edgar believes it invaluable in cases where we have to use temporizing means until we can secure dilatation of the cervix. It is second in efficiency only to chloroform. It diminishes the pulse rate and convulsions are almost unknown when the pulse is 60 or under. He gives 10 to 20 minims of the fluid extract or one-half that quantity of Norwood's tincture subcutaneously, and repeats until the pulse continues below 60 to the minute, keeping the patient in the recumbent position. Richard C. Norris finds that the cases suitable for veratrum viride are those in which bleeding is often indicated. It can be employed sometimes when bleeding is not possible. A knowledge of the proper dose is essential. He nearly lost a patient from a hypodermic dose of 20 drops of the fluid extract. Smaller doses at frequent intervals are better, the interval being determined by the effect produced by the drug. Beginning with an initial dose of 8 minims he has repeated the administration in 5 minim doses as soon as the effect of the first dose did not appear in fifteen minutes or had begun to pass off. Barton C. Hirst has employed it for some twelve or fifteen years and has great confidence in its efficiency. It is most valuable in asthenic conditions; he would not use it in asthenia. Edward P. Davis expresses a similar opinion. Drs. George M. Boyd, W. Reynolds Wilson, Whitridge Williams, and Edward Reynolds have either had very little experience with it or consider it of slight value or even dangerous. Dr. Wilson thinks that it may possibly interfere with active uterine contractions which are Nature's means of removing exciting causes of convulsions.

47. **Gelatin in Hemorrhage.**—As a result of an analysis of the literature Sailer thinks the following conclusions are reasonable: 1. Gelatin increases the coagulability of the blood, whether applied locally, taken internally by the mouth, or injected subcutaneously or intravenously. 2. Applied locally it is usually harmless, and may, as Carnot suggested, aid in healing by improving the nutrition of the cells, although he regards this as doubtful. It may be injurious by promoting bacterial growth, and should probably always have some antiseptic added to it. 3. Injected subcutaneously or intravenously it is entirely harmless, and when the technique is perfect, practically painless. The solution should be thoroughly sterile; the dose employed should vary from one to three

grams of pure gelatin. 4. When administered by the mouth from 1 to 300 grams or perhaps more, should be employed daily. 5. It is of advantage in any form of local hemorrhage, such as epistaxis, hemorrhoids, or injuries. 6. It checks certain forms of internal hemorrhages such as hemoptysis, hematemesis, metrorrhagia, melena neonatorum. 7. It appears to be the best remedy at our command in the treatment of hemophilia, and to be of great advantage for purpura hemorrhagica, and in hemorrhagic forms of infectious disease. 8. At present it appears to be contra-indicated in only one condition, viz., acute nephritis.

48. **Pilocarpin in Eye Disorders.**—Hansell finds the effect of pilocarpin is of value in certain cases of inflammation of different structures of the eye. His method is as follows: A convenient hour is chosen, usually 3 p. m., and the patient is put in a hot bath ranging from 106 to 110 F.; during the bath he drinks a cup of tea. After twenty minutes immersion he is put into bed and receives a hypodermic injection of 1/12 to 1/8 of a grain of pilocarpin muriate. The sweating begins in a few minutes and is encouraged by hot bottles and blankets for two hours or more. If it should become slight or insignificant during the two hours, a glass of ice water is given, when the glands take on renewed activity. After the sweating, the wet blankets are removed, clean bed clothing substituted and the patient is allowed to remain quietly in bed until the next morning, when he may get up and dress until time for the next bath. If exhaustion follows the bath, a hypodermic injection of strychnin is given one-half hour before the next bath. The diet should be largely fluid and whatever local eye treatment is called for, is of course, administered and is not interfered with by the sweats. He refers to a number of cases in his practice and suggests that his own experience and that of some others who have tried it, has been so favorable that he feels he can recommend it in all chronic deep-seated inflammations of the eye that are not amenable to the usual remedies.

50.—See abstract in THE JOURNAL, XXXVI, p. 1725.

53. **Cystitis, Pyelitis and Pyelonephritis in Women.**—From a study of the results obtained in his investigation, Brown concludes: 1. The direct cause of the infection of the urinary tract in women is the invasion and multiplication of some form of micro-organism. 2. The commonest cause of these infections is the B. coli communis, which a consideration of the cases of acute cystitis definitely proves can and does in a large number of cases set up a true infection without the aid of any other micro-organism. 3. Marked variations are seen in the virulence of this micro-organism and in its pyogenic properties. 4. Other micro-organisms frequently found are the tubercle bacillus, various staphylococci and the B. proteus vulgaris; while numerous varieties of micro-organisms have been less frequently and occasionally met with, as the B. pyocaneus and typhoid bacillus. 5. The proportion of cases of infection due to the B. coli communis is greater in women than in men, probably due to the close proximity of the female urethra to the anus. 6. Besides the entrance of the micro-organisms, other factors are in most cases essential to the development of a cystitis; chief among these factors are anemia, malnutrition, trauma and pressure upon the bladder, congestion of the bladder and retention of urine. 7. In cystitis the chief mode of infection is by the urethra, although one must also consider as possibilities a descending ureteral infection from an infected kidney, pyogenic metastasis by means of the blood and lymph currents, and direct transmission of the micro-organisms from the intestinal tract, or from some adjacent focus of infection. 8. In pyelitis and pyelonephritis the usual modes of infection are along the ureter from an infected bladder, and by means of the blood and lymph currents; in the author's cases these modes of infection were found about equally represented. 9. In the great majority of cases of cystitis, both acute and chronic, and in the majority of cases of pyelitis and pyelonephritis, the urine is acid. 10. In the cases in which the urine is ammoniacal, the infection can be produced without the aid of any of the accessory etiological factors mentioned above, the irritation of the ammoniacal urine apparently being sufficient to render the bladder susceptible to infection. 11. In the case of infection of the kidney due to urea-decomposing micro-organisms, a stone is very likely to be present if the case is at all chronic. 12. Certain conditions exist which present most of the symptoms of cystitis but no infection; the most difficult of which to diagnose is probably urinary hyperacidity of neuropathic origin, the successful treatment of which depends upon the successful recognition both of its urinary features and its general basis. 13. Although the diagnosis of renal infections can be made with absolute certainty only by ureteral catheterization, a probable differentiation between renal and vesical infections can be made by a careful study of the urine alone. 14. Tuberculous infections of the urinary tract frequently occur with no other demonstrable tuberculous lesions elsewhere in the body. Probably a tuberculous gland would be demonstrable postmortem in most of these cases. 15. The colon bacillus seems to be the commonest cause of pyelitis, while the B. proteus vulgaris and members of the staphylococcus group are also found less frequently. 16. And finally, to be able to thoroughly understand the cases of cystitis, pyelitis and pyelonephritis brought to our notice, to make the proper diagnosis, to inaugurate and carry out a rational line of treatment and to give a correct prognosis, a careful chemical and bacteriological study of the urine is absolutely essential." See also 24.

54. **Strongyloides Intestinalis.**—Strong reports cases of dysentery with ulcer of the large intestine and abscess of the liver and retroperitoneal abscess in which there was an intestinal infection of the strongyloides intestinalis. The kidneys were degenerated and the liver, also the heart muscle. A thorough postmortem examination was made, and a description of the parasite is given with a historical review of the literature in the pathology. From a study of the microscopical sections of two fatal cases and from observations made upon five clinical cases he cannot consider the parasite harmless, nor does he regard it as a direct danger to man. He believes that it can produce an intermittent diarrhea with intestinal disturbances, and anatomically, a catarrh of the small intestine. The parasite certainly causes some injury from its rapid mechanical movement, but whether it produces any chemical substance harmful to man has yet to be proven. Moderately severe infections probably cause only slight injuries. The milder cases of infection generally yield to large doses of thymol, with general tonic treatment. It may be necessary to repeat the treatment at intervals. In very severe infections neither male fern nor thymol are of any apparent value in curing the disease and ridding the patient of the parasite.

61.—This article has appeared elsewhere. See THE JOURNAL of August 10, title 60, p. 406.

70. **Malignant Neoplasms.**—Currier favors the non-surgical treatment of cancer, pointing out that many cases treated by quacks recover. He has watched them for years. He resolved to know the value of these methods so he has been studying general and local medication. For the general medication to assist nature in her endeavor to relieve herself, he believes in the free use of phosphates, protonuclein, thyroid extract, the iodids to stimulate glandular activity, which in many cases is the most important thing to do, Chian turpentine, which he thinks has good results when properly administered, phytolacca, sulphur, echinacea, and conium. For local treatment he believes that electricity will be an agent of great value, though it has failed in private practice. Cataphoresis is opening up a field of vast possibilities. Arsenious acid, which has been much used, is an excellent thing, though quite painful unless prepared with some local anesthetic, such as cocain or eucain B. Chromium chlorid should be used in cases of scirrhus situated deep in the cellular tissue with the skin intact. It has the same selective action as arsenious acid when the strength is properly regulated and its action can be guided in any direction. It is best to commence by removing the cuticle over the most prominent part, and he says one who has never tried it would be surprised to see how quickly the tumor contracts and how smoothly it separates

from the parts around. Salicylic acid with lactic acid makes a desirable application for disease on the accessible mucous surfaces other than the mouth. It must be applied freshly prepared each day. If persevered in it will cause the diseased mass to separate in from five to ten days. He reports good results with formalin. As soon as the line of separation commences it should be filled in once or twice a day with protonuclein special. Eucain B. or cocain is the best local anesthetic where there is pain. The general edema being so great that no tumor can be discovered, he uses resorcin and phytolacca ointment which soon outlines the growth. He reports three cases, one of epithelioma, the second and third of cancer of the breast, and the second with enlarged axillary glands, in all of which there was good recovery.

83. **Puerperal Eclampsia.**—The remedy here recommended for puerperal eclampsia is veratrum viride with which Gordon has treated four cases, all of which recovered. In no case was there a convulsion where the pulse was held below 60. In the most recent case there were six convulsions before veratrum viride was used, under the administration of chloral, chloroform and morphin, while 10 minims of fluid extract of veratrum hypodermically brought the pulse down to 50, made it soft, and convulsions ceased. The uterus was emptied in all of these cases out of regard for the general opinion of the profession, and not from a lack of confidence in the medication. He holds that there is ground for some conservatism in this matter when we consider the twenty-six successful cases thus treated by Dr. Newton without interference with pregnancy. He thinks 10 minims the proper initial dose, with 5 minim doses at intervals of one-half hour until the pulse comes down to 60 or below. It is not often necessary to give a second dose, as the first is generally efficient.

84. **Retroflexions.**—Gellhorn recommends a method of vesico-fixation invented by Mackenrodt in 1895 for retroflexion of the mobile uterus and describes the operation. For the details of this the reader is referred to the article. A number of cases are reported. The advantages claimed are the restoration of the physiological situs in the pelvis as much as possible. The peritoneum being shortened by loosening up the bladder and sewed high up to the fundus on a line between the tubes, and a serous connection between uterus and bladder being thus established. The second part of the operation consists in sewing the vesico-vaginal septum to the anterior surface of the womb, thereby the bare posterior wall of the bladder becomes attached to the anterior wall of the uterus, which is covered with peritoneum, thus forming a sero-fibrous connection, sufficiently strong to hold both organs in place, but not so rigid and unyielding as to interfere with the development of the womb in case of a later pregnancy.

86. **Cystocele.**—In Sutton's operation "the incision is made around the cervix extending to the lateral sulci, forming the base of a triangle the apex of which is at the meatus, the sides of which take in sufficient of the anterior wall when edges reunited will completely retain the superimposed bladder; denudation made as one flap. Amputation of the cervix, or repair of the cervix, as the case may require, being performed at the time of the first incision, and dissection of the tissues from the anterior surface of the cervix sufficiently to allow the easy repositing of the uterus. Sutures introduced in front of the cervix may be continuous catgut or interrupted silk as the surgeon desires. Buried sutures not necessary, wound closed; result is a lengthening of from two and a half cm. of the vaginal wall with repositing of the cervix into the hollow of the sacrum, where it properly belongs, out of the reach of the patient who usually informs me after the operation that she can no longer feel the womb. This operation, of course, being supplemented with repair of the posterior wall of the vagina and perineum. When performed in this manner suspension of the uterus or shortening of the round ligaments intra-abdominally can be dispensed with, as the organ assumes its natural position in consequence of the lengthening of the anterior vaginal wall." He has performed this operation a number of times, and the results are uniformly as stated.

87. **Electricity in Gynecology.**—Walling recommends the use of electricity by galvanization, faradization and static spark in amenorrhea, dysmenorrhea, ovarian neuralgia, delayed menstruation, erosions, metritis and endometritis, pyosalpinx, subinvolutions and fibroids.

88. **Gold-Beater's Skin Court-Plaster.**—Day recommends gold-beater's skin court-plaster as having the following advantages as a surgical dressing when prepared by the cumol process: "1. It is aseptic, antiseptic, and impervious to germ life. 2. It is thin and pliable. 3. It is transparent. 4. It is fibrous and adherent. 5. It forms a light and comfortable dressing. 6. It is readily removed by the application of moisture."

89. **The Dry Method in Surgery.**—Walker advocates the use of the dry method in surgery as meeting all the requirements and favoring infection less. He has performed by the dry method 262 operations on 234 patients with a mortality of 5. One of these fatal cases was a suppurating fibroid, and the patient had been septic for weeks, and it was done *in extremis;* another was a resection of the pylorus and one-third of the stomach for cancer; the third was a resection of the sigmoid flexure for malignant disease, and the fourth, an infected urachus. In the fifth, death occurred forty-eight hours after a prostatectomy. Of the total number 163 were clean cases, and in 2 there was a suppuration in the wound. The remainder were absolutely aseptic in healing. The infected cases were 71 in number, of these there was no suppuration afterward in 47; 24 were septic after the operation. Some were emergency cases and the preparation not as good as it should have been. Of the total number 72 were laparotomies.

96. **The Brain and Its Evolution.**—The special point in Woodruff's article is that civilization and brain development have gone hand in hand, and that the lower races that have not taken part in it are forever unfitted for the former, the more so the earlier "they escaped from the factory of brain." He holds that the negro is unsuited for civilization, and must necessarily become extinct; that change of climate must necessarily be accompanied by change of type; that religion is purely a matter of brain evolution and race; that evolution is still a constant effective factor, and that efforts to modify it by checking or preventing degeneration are futile. We are now passing through the critical period, separating the earlier era of savagery and the future one of specialists.

99. **Dispensary Treatment of Mental Diseases.**—Channing gives an account of the methods of treating out-patient cases of mental disorder in the Boston dispensary. Many of them were developed cases of insanity, unrecognized or otherwise. Others were incipient cases in which the attack was checked by the treatment received, or cases that were prevented from developing into insanity. Still others were epileptics, cases of simple depression, or were defective children, susceptible of amendment under proper treatment. Some cases were benefited by being sent to the hospital in time, others they were able to prevent from going there. The clinical advantages are also discussed.

100. **Dementia Precox.**—Browning's article is a translation from the German of Kraepelin.

101. **Chloretone.**—Nine cases of the continued use of chloretone are reported by Dunton; in all but one unfavorable action on the heart, kidneys, etc., was observed. He thinks the main disadvantageous action is on the heart and that it is depressant in character. The total amounts given in each case ranged from 200 or 300 to 1100 grains. The latter amount was reached only in the patient who showed no bad effects.

102.—This article was noticed in THE JOURNAL in the issue of July 20, page 218.

FOREIGN.

British Medical Journal, August 24.

Treatment of Wounded in Naval Actions. FLEET-SURGEON GILBERT KIRKER, M.D.—The author discusses the sub-

ject under these heads: 1, the surgeons' station; 2, the time of treatment; 3, the conveyance of the wounded. As regards the first, modern ships of war have not the old cockpit; Kirker thinks an operating room should be provided, protected in time of action, so that the experience of the Japanese ship *Hujei*, where all medical supplies were destroyed and the whole medical force was put hors de combat by a shell, should not be repeated. As regards time of treatment it seems to be generally held now that any elaborate surgical work during action is impracticable; but naval actions are liable to be quickly over. The men should receive instruction as to first aid, and stimulant and restorative drinks be provided. For the conveyance of the wounded, a ship ambulance should meet several indications; it must retain its occupants safely in all positions; it must be able to slide down steep ladders, at any angle, be short enough to go around corners, in confined spaces, and where two men can not move it well in confined spaces it should be transportable by one. He mentions certain appliances, among them one of his own device, an "ambulance sleigh," which is now under trial.

The Disposal of the Wounded in Naval Actions. SURGEON F. H. A. CLAYTON, R. N.—This article reviews the conditions rather more in detail than does Kirker, pointing out the necessity of safe storage of the principal medical supplies, having dressing stations only on deck with first aid appliances, mattresses, etc. On ships where a protected operating room is unavailable several localities may be selected, in case any one is liable to be wrecked, and utilized at the earliest opportunity. Sterilized clothing for the men to be put on before action is suggested, and the desirability of a good and always ready application for burns. The picric acid treatment suggests itself from its simplicity and the infrequency of needed changes of dressing. The importance of ambulance drill and instruction is dwelt upon.

Floating Hospitals. INSPECTOR-GENERAL BELGRAVE NINNIS, R. N. (retired).—The points emphasized as of supreme importance by the author are the following: 1. That the ship should be of metal, cased on the outside with wood, thus combining the cleanliness of metal with the coolness and non-conductibility of wood, and that there should be no possibility of communication between the bilge and the wards. 2. That the wards should be absolutely without communication one with the other, and that each should have direct and independent air communication with the upper deck. 3. That the portion of the main and middle decks appropriated to the waterclosets should extend across the deck, so that a through current of air could be secured. 4. That the watercloset when in use should be absolutely cut off from this space. 5. That the platforms fitted outside the main and middle decks be of such a size as to accommodate a stretcher or lounge, and the parts leading on to them be in such a position as to give easy passage to a stretcher or carrying chair. It is most essential that in these ships lighting should be by electricity, as the power required for producing this would be utilized for various other purposes, as is done in our larger passenger steamers.

Healthfulness of Modern Warships. STAFF-SURGEON W. E. HOWE, R. N.—Howe shows from official tables that the earlier ironclads were healthier than the old wooden ships, and that the more modern vessels are better still than these. The requisites for a healthy ship are given by him as follows: "1. Have certainly not less than 120 cubic feet of space for each man, and more in the tropics. 2. Have uptake ventilators from every compartment, opening as near the top as possible. These should be so constructed as to be capable of being cleaned by a brush pulled through. 3. Cowls and air-shafts are needed to be supplemented in all favorable weather by a windsail for each hatchway and wind scoops for each port or scuttle in the side. Artificial ventilation is required for every space in which men live (only to be used on the main deck in bad weather). 4. She should be warmed and kept dry by steam radiators. In 1888, the *Alexandra* having been fitted with electric light and being now kept drier by the heat radiated from the boiler always alight, had less than half as many cases of Malta fever as she had had in each of the four preceding years. 5. Whenever decks are washed, the last washing over should be done with a 1 in 1000 solution of perchlorid of mercury or another antiseptic. The mess tables and stools are similarly washed. This reduces the liability of casual wounds to inflame. I would like also to spray the beams overhead witth formalin solution once a week in order to diminish the occurrence of sore throats and other septic diseases. But I quite believe the best general antiseptic on board a ship to be fresh dry air in plenty. 6. There should be a drying room for the wet clothes and bedding of the ship's company."

The Theory of Air-Borne Typhoid in Armies. H. E. LEIGH CANNEY, M.D.—From a consideration of the conditions under which typhoid originates and spreads in armies in India, South Africa, and Egypt, which he reviews in detail, including those of the camps of workmen at the Assouan dam, Canney concludes: 1. That the evidence of air-borne typhoid recorded in Indian military experience is not established. 2. That in South Africa and Egypt the evidence is opposed to this theory. 3. That in India, South Africa, and Egypt the immense weight of evidence and probability is in favor of a water-borne origin and spread. 4. That the evidence from Egypt proves that if the avenues to man by means of water be protected, all other avenues are powerless to originate and spread typhoid in large bodies of men. There is strong evidence to suppose that the same methods would bring about like results in India, South Africa, and other countries. 5. That the origin and spread of typhoid by means of flies and dust being theory only, can only be discussed as such in relation to certain laboratory experiments, and that in practice it is unjustifiable to hold this theory, if it should deter, delay or hinder the adoption in armies of the most vigorous, and comprehensive measures against water-borne typhoid. The laboratory research, he holds, proves: 1. That in soils in which it might be expected it is never found. 2. That it is extremely difficult for the typhoid bacillus to live in soil, and that, if much moisture exists and a temperature above 66, it will only live some hours. 3. That the action of light and total drying on the superficial layers of infected dust are so specially deadly to the typhoid bacillus as to account for the fact that, though it may be partly dried in the laboratory, it has not been driven through the air and recovered. 4. That its recovery from water is difficult, and failure to recover it does not show either that it was not there at the time of examination, or at any previous time. It is interesting to find that the conclusion arrived at in the study of the natural experiments or epidemics coincides closely with the facts which laboratory research has established. Enteric fever will have to be met in all parts of the world on the water-borne theory mainly, though every other avenue must be guarded. His conclusions were combated in the discussion following by Lieut.-Col. Giles, I. M. S., who criticised his deductions from India where air-borne and fly-borne typhoid was a frequent mode of infection and the water-borne theory failed to account for many attacks.

The Lancet, August 24.

How Can the Tuberculin Test be Utilized for the Stamping Out of Bovine Tuberculosis?—SHERIDAN DELEPINE, M. D.—Delepine finds from his investigations that: 1. Tuberculin is an almost infallible test of the presence of tuberculosis in animals under seven years of age when this fluid is used with proper care. In older cattle clinical methods are more reliable than the tuberculin test as used at present. (The use of larger doses than the usual ones may, however, be resorted to with advantage in these cases.) 2. It is possible by the use of tuberculin and thorough disinfection of cattle-sheds to stamp out tuberculosis from a herd in the course of one year. 3. Cases of infection which may accidentally occur after this preliminary removal of tuberculous cattle can be easily and economically detected by periodical use of tuberculin. 4. Tuberculous animals between two and three years of age can be disposed of on the meat market without serious loss. 5. The slaughter of cows in calf or of milch cows not in an advanced stage of tuberculosis involves a serious loss to the

farmer, and so long as tuberculosis is as prevalent as it is at the present time it is doubtful whether the measures necessary for the extirpation of tuberculosis can be left to private efforts without state help. 6. To remove the chief sources of infection immediate slaughter should be resorted to in the case of all animals in a state of advanced tuberculosis, and of all cows with tuberculosis of the udder. 7. Milch cows and cows in calf in which tuberculosis is not very advanced should be isolated and slaughtered only after they have been suitably prepared for the butcher. The milk of tuberculous cows should invariably be sterilized by boiling. 8. Valuable breeding animals free from advanced tuberculosis or tuberculosis of the generative organs should be isolated; and they can be kept for a time for breeding purposes, provided the calves are isolated and fed on sterilized milk. 9. Measures which do not provide for the removal of all tuberculous animals from a district, for the disinfection of all cattle-sheds in that district, for the periodical testing of all the animals within the district, and which do not give the means of preventing the importation of tuberculous animals can not be expected to yield satisfactory results. On the basis of these conclusions he advises dividing the country into administrative and inspection districts; marking and registration of all cattle and isolation of tuberculous animals, and disinfection of sheds where they have been; immediate slaughter of all advanced cases, and fattening for the market of those less advanced, the slaughter to be done in public abattoirs to insure proper meat inspection. He would have compensation for condemned animals allowed for a year or two; after that, the finding of an advanced case to subject the owner to a penalty. He advises the testing of all introduced cattle to prevent fresh sources of disease; no cattle over six years old should be imported. All milk from tuberculous cattle should be boiled before used, and control of imported foreign dairy produce to insure equal standard of purity as with home produce. In order to prevent disturbance in the dairy business he would enforce these rules gradually, first in one, then in another part of the country, taking five or six years to make them complete and uniform.

The Treatment of Melancholia. L. C. BRUCE and H. DE MAINE ALEXANDER.—The authors say: "We believe melancholia to be a disease of disordered metabolism and that treatment should be directed towards increasing the excretion of waste products of this metabolism through the channels of the urinary and integumentary systems, and we mechanically accomplish this end by administering to our patients an abundant fluid dietary. By means of this treatment the blood gets rid of its overcharge of waste products and the arterial tension falls. We assist digestion by giving milk frequently, and in small quantities, as it is the most easily assimilated food. We consider the forcing of solid food (or such as custards) upon a patient suffering from acute melancholia just as injudicious treatment as would be the feeding of a patient suffering from typhoid fever exclusively on beef-steaks." They give charts illustrating the progress of the treatment in four cases; also a weight table of the last eight cases treated. They believe that thus managed, melancholia is a disease very amenable to treatment.

The Conditions of the Blood in Scarlet Fever. F. PERCIVAL MACKIE.—From the examination of the blood in twenty-five cases of scarlet fever of varying degrees of severity, and at various stages of the disease, Mackie found that moderate anemia was a constant feature. In half the cases the red cells numbered between 3,500,000 and 4,000,000 per cubic millimeter; the highest count was 4,170,000. The percentage of hemoglobin was in direct ratio to the number of red cells, so that the individual corpuscular richness kept him very nearly normal. All the cases were accompanied by leucocytosis to a pathological degree, that is, over 10,000 per cubic millimeter. This leucocytosis seems to bear no direct ratio to the temperature, but varies rather with the severity of the throat lesion, and to a less extent with that of the rash. In most cases the increase of leucocytosis began about 24 hours after the appearance of the rash, and reached a maximum after the subsidence of the general symptoms, and at times varying in different cases from the third to the tenth day. Mild cases show a maximum increase about the fourth day after the appearance of the rash, and therefore generally not less than 24 hours after the complete disappearance of the rash. In the presence of septic complications the duration and intensity of leucocytosis naturally depends upon the intensity and duration of such complications. In anginal cases the leucocytosis may be very high (93,300 in one case), and in the one fatal case it diminished as the disease became more severe. This seems analogous with the blood condition in pneumonia, where a decrease of leucocytes in a severe case is looked upon as a bad sign. Percentage enumeration of white corpuscles was only carried out in a few instances, but in these the chief increase of eosinophile cells was present (5 or 6 per cent.). These results agree in the main, as he shows, with those of other observers. They also tend to bring the question of leucocytosis in scarlet fever into line with that found in other diseases, notably pneumonia, and indicate that this leucocytosis is a favorable sign, perhaps having some relation to acquired immunity. Its absence, on the other hand, especially in a severe case, is of bad import, and the same is true of a sudden drop in a case of increasing severity. It is of further value in his experience as indicating septic complications such as deep suppuration in the neck or obscure middle ear disease not revealed by the temperature. The condition of the throat has much to do with the leucocytosis which is not excessive when the discharge is free. Contrary to Cabot's experience, Mackie found no leucocytosis until the rash had appeared for twenty-four hours. He remarks that the increase of eosinophile cells is interesting and supports the theory of their having to do with the production of antitoxin, though unfortunately it does not hold good in other diseases where antitoxin is produced. He is inclined to think that these cells are in some relation to skin conditions, as they are increased in many skin diseases. He has not, however, been able to determine any relations between them and the scarlet fever rash or between the leucocytosis and the kidney complications. The deficiency of red blood cells indicates rational use of iron medication, except possibly in cases with arthritic complications.

Annales de l'Institut Pasteur (Paris), July.

Importance of the Micellae in the Chemistry of the Cell. S. POSTERNAK.—Posternak describes a series of comprehensive researches on the structure and changes in colloid substances. He has become convinced that the different groups can be differentiated by the elective character of the adhesive affinity of their micellæ. The adhesive affinities of the micellæ are distinctly elective and specific, like chemical affinities. As protoplasm is made up principally of colloid matter—whose micellæ do not become dissociated without the intervention of a chemical reaction—the most important factor in the structure of the cell may prove to be the elective affinities of the micellæ. The chemistry of the cell is something more than merely molecular; it is evidently to a large extent, micellar.

Annales des Maladies des Org. Gen.-Urin. (Paris), June.

Indications for Nephrectomy in Renal Tuberculosis. F. LEGUEU.—Patients are frequently treated for tuberculosis of the bladder when the real trouble is incipient renal disease. Nephrectomy is indicated when the tubercular lesions are progressing and causing emaciation. Hemorrhage and pain are secondary indications. Emaciation progressing in spite of medicinal measures clearly indicates nephrectomy. Tubercular infection of the bladder or lungs is not an obstacle to nephrectomy. It is frequently remarkably benefited by it. The ureter must be resected also, if very much affected. The upper end alone may be removed, leaving the rest to atrophy. When the kidney is removed before the appearance of other manifestations of tuberculosis, permanent cure may result. One patient with tuberculosis of the lung, kidney, one ureter and bladder, gained fifteen pounds after the infected kidney was removed.

July.

Pathology of the Seminal Vesicles. R. DUHOT.—Acute and chronic inflammation of the seminal vesicles is much more

frequent than generally supposed, Duhot asserts as the results of extensive clinical and experimental research. Gonorrhea is not the sole cause—any of the pyogenic microbes may induce it. Chronic spermatocystitis is especially frequent. It may be consecutive to chronic gonorrhea or merely the consequence of repeated inflammations in the neighboring organs. The changes induced in the vesicles by inflammation are both numerous and severe, interfering with the functions of the organ and inducing sterility by altering the composition of the sperm and killing the spermatozoids. The changes from amyloid degeneration and acute diphtheritic inflammation of the seminal vesicles in two cases are illustrated.

Treatment of Contusion of the Kidney. P. DELBET.—The 320 cases collected from the literature include Fenger's, published in THE JOURNAL in 1889. Delbet's conclusions from this review, from one personal case and considerable experimental research, are that the treatment of renal contusion is of necessity purely symptomatic. Immediate intervention is indicated on suspicion of intraperitoneal hemorrhage. Hematuria alone does not justify it. Secondary operation is indicated only in case of symptoms and gradually increasing subperitoneal hemorrhage, anuria or persisting hematuria. Intervention, however, is formally indicated in case of secondary hematuria. The operation should be as conservative as possible, unless the kidney has been torn from its pedicle, or is crushed completely or has the "dead leaf" color; any of these conditions demand nephrectomy. Otherwise the kidney should be merely exposed, tamponed and the wound left open. In the personal case described a young man had fallen from a second story. The kidneys showed no signs of injury at first, but suddenly hematuria and a swelling in the region developed, apparently cured by nephrotomy and suture. Five months later, however, the symptoms recurred, and notwithstanding attempted nephrectomy, death occurred in a few hours.

Technique of Suturing the Urethra. J. ZADOK.—The healing of an incision or wound in the urethra is much facilitated by the technique which Zadok has practiced on fifteen patients with brilliant success. The urethra alone is sutured. The wound in the soft parts is merely extensively drained through the gaping lips. This technique is indicated in all cases in which the urine is septic or there is suppuration of the meatus or perineum at any point. The permanent sound should be changed on the third day, and removed on the fifth to eighth day at latest, and progressive dilatation commenced.

Presse Medicale (Paris), August 7.

Transmission of the Meningococcus by the Respiratory Passages. BUSQUET.—Nasal mucus from patients with epidemic cerebrospinal meningitis was placed in the nose of guinea-pigs. All the inoculated animals became infected and the meningococcus was cultivated from the cerebrospinal fluid of those that died. Other animals inoculated with nasal mucus from the infected animals also died. Nasal mucus from the infected animals was placed in the nose of other animals of the same species, and the latter likewise succumbed to the infection. Cerebrospinal fluid from patients dying from the disease was placed on the nasal mucosa of animals with like positive results.

August 14.

Forceps for Simultaneous Hemostasis and Suturing. J. C. LIMA CASTRO.—The upper surface of the forceps is cut in a series of deep, parallel, transverse grooves. The side view of the blades of the instrument resembles an arc of a cogwheel. The forceps are applied for hemostasis as usual, and the stitches of the suture are taken through the tissues squeezed flat between the blades, one stitch at the bottom of each groove in turn. The forceps was designed especially for use in hemorrhoids, but has proved valuable in many other operations.

Revue de Chirurgie (Paris), August.

Radiography in Surgery of the Lungs. T. TUFFIER.—Operations on the lungs in which the lesion was accurately diagnosed beforehand were successful in 71 per cent., that is, the mortality was only 29 per cent., while the mortality was 60 per cent. in the cases in which there was a mistake in the diagnosis. In 300 cases which Tuffier has collected, the lesion had been incorrectly diagnosed in 48. In 9 cases the lesion was supposed to be in the lung when it was in reality in the pleura, liver or kidney. Tuffier's personal experience now includes 25 operations on the lungs. He was able to apply radiography in 8. In 5 the results were extremely satisfactory; in 3 they were negative. He urgently advises radiography and especially stereo-radiography, in all cases before operating on the lung. When the radiographic findings contradict those obtained by percussion and auscultation, the latter should be neglected and the radiographic indications followed. The *x*-rays, however, are liable to fail in case of living hydatids, and they are unable to afford information in regard to the multiplicity of the foci. The results are liable to be negative when the lesion is on the left side, as the shadow of the heart may cover it. In two cases gangrenous abscesses in the lower lobe of the right lung cast distinct shadows, enabling them to be promptly evacuated with rapid recovery of the patients. In another case the entire left lung was opaque, but the shadow was a trifle denser in the lower third, where the dulness was most marked, where the focus was found. In a fourth case, radiography located the lesion toward the base of the lung while the stethoscope indicated a higher site. The incision was made at the latter point, with negative results even after resection of the rib. The rib below was then resected, and the pleura was found adherent with the lung sclerosed and hard, and a series of pockets in the bronchi were discovered at the points indicated by the *x*-rays. In the three negative cases, the lesion was on the left side.

Laceration of the Vessels in Fractures of the Clavicle. E. GALLOIS.—Laceration of the vessels is a very serious complication of simple fracture of the clavicle. Only 2 patients recovered in the 11 cases collected. The successes recently obtained in operation on the vessels of the neck, justify the assumption that improved technique will reduce the mortality of these injuries of the vessels from fragments of the fractured clavicle. Free incision must be made and the entire clavicle resected if necessary. Wounds of the veins seem generally less serious than those of arteries. Gallois' experiments on the cadaver and clinical experience have shown that the subclavian vein is always injured at the point back of the inner third of the clavicle, and the internal jugular, several centimeters above the sterno-clavicular articulation. Compression or ligature has great possibility of success under these circumstances. There is no danger connected with the interruption of the circulation of the large veins at the base of the neck. A diffuse aneurysmal hematoma from the subclavian is more serious. All the patients have died, irrespective of the method of treatment adopted. In a personal case reported, the indirect fracture of the right clavicle was followed by an arteriovenous aneurysm. An injection of gelatinized serum was made, but the results were deplorable. Suppuration at the point of injection followed, with consequent inflammation of the aneurysmal sac, requiring operation to forestall pyohemia from perforation of an abscess into the large vessels. The wall of the sac had become weakened by the suppuration, and ruptured. Gelatin treatment should be reserved for internal aneurysms in which surgical interference is impossible. It should be absolutely rejected in all cases amenable to operation. In the case of the aneurysm mentioned above the inner fragment of the clavicle was removed and the incision carried along the entire margin of the sterno-cleido-mastoid muscle.

Anuria in the Course of Carcinoma of the Uterus. PATEL.—Anuria may appear as the first symptom of malignant disease in the uterus, or it may appear suddenly in the course of recognized carcinoma, or may develop progressively. The latter most frequently occurs. Nephrostomy by the lumbar route is the operation of choice, except in advanced stages of malignant disease. If the general condition is good, the operation should be performed promptly, to forestall or cure the resulting uremia. In two ureterostomies and six nephrostomies that have been reported in France, the patients

survived several months after the latter operation, but death followed in a few days after the operations on the ureters.

Traumatic Rupture of the Spleen.—Two cases of rupture of the spleen from the kick of a horse were related at a recent meeting of the Société de Chirurgie. There were no signs of internal hemorrhage until twenty-four hours afterward, when splenectomy was performed. Only one patient recovered. The other succumbed to septicemia the sixth day. The only signs of the injury at first were pallor, vomiting once, and rigidity of the contracted abdominal wall.

Semaine Medicale (Paris), August 14.

Clinical Utilization of the Dosage of Iron in the Blood. L. BARD.—According to Bard's belief, all the tissues of the organism are constituted on a common plan, and comprise a fundamental species of cell, which ensures their special existence, but has nothing to do with their physiologic activity, and, on the other hand, one or more derived substances, formed by the cells in their protoplasma or outside, which are the only substances endowed with the physiologic function. In the blood, for instance, the fundamental cell is represented by the leucocytes, while the hemoglobin and the serum are the derived substances. According to this theory, the hemoglobin is not a stable substance, with the definite composition usually attributed to it. It varies according as it is freshly formed or ripened, and these variations cause the relations between the hemoglobin and the color of the blood to be modified under diverse circumstances. For example, the iron is increased in proportion to the color, that is, the amount of iron is increased more than the color has changed, in comparison with normal blood, in all cases of simple anemia with normal blood-producing and blood-regenerating powers. On the contrary, the amount of iron is less, in proportion to the color, in all cases in which the regeneration of the blood is defective from cachexia or serious organic disease. In certain affections the diagnosis is uncertain owing to the impossibility of determining whether the accidents observed in chlorosis, for instance, are due to the intensity of the latter, or whether the chlorosis itself is caused or maintained by some organic affection of heart or lungs. Dosage of the iron will promptly decide the question. In simple chlorosis, before it is improved by treatment, the proportion of iron surpasses the color by 10 to 20 per cent. on an average. When the chlorosis is complicated by tuberculosis, the inverse proportion prevails and the iron is 10 per cent. behind the color. The same phenomenon is noted in anemia symptomatic of tuberculosis, with or without chlorosis. This comparative dosage of the iron may also serve to solve some of the problems of the effect of altitude on the blood.

Berliner Klin. Wochenschrift, July 29.

Chronic Pentosuria. F. MEYER.—A patient was treated at Leyden's clinic for chronic pentosuria. The symptoms were extreme emaciation and neurasthenia with rebellious neuralgia. The tolerance for carbohydrates and food rich in nuclein was remarkable. The patient rapidly improved on a mixed diet.

August 12.

Subcutaneous Injections of Gelatin for Hemostasis. GRUNOW.—Twenty-seven cases of severe internal hemorrhage were treated at Quincke's clinic by the subcutaneous injection of gelatin, with only one death. In 7 cases the hemorrhage was from the lungs, including one of gangrene consecutive to injury from swallowing lye. Five days after the first injection, a quantity of clots was expectorated, with 380 c.c. of blood. Four days later another mass of clots was expelled with less blood. The largest clot was the size of the finger, with distinct ramifications. In fifteen days the sputum was quite free from blood. The patient died a week or so later from the consequences of an abscess, not from hemorrhage. In 8 cases the hemorrhage was in the intestines; 6 in the course of typhoid, 1 in leukemia and 1 in purpura hemorrhagica. In 7 the hemorrhage was from the stomach; from ulcer in 5, carcinoma in 1 and hemophilia in 1. Twice the hemorrhage was from the bladder, twice from the kidney and once from an aneurysm. In the overwhelming majority of cases the hemorrhage was arrested, transiently or permanently. The failures were probably due to inadequate dosage. As the hemostatic influence of the gelatin is transient, it is administered daily as long as necessary, injecting 2 gm. of gelatin in each thigh, dissolved in 100 gm. of salt solution, using a bulb instead of a syringe, with the air filtered through cotton. The apparatus is kept always ready for immediate use. Other hemostatics were applied at the same time, but the recurrence of the hemorrhage when the amount of gelatin was reduced, and the expulsion of large, tough coagula, indicate that the gelatin was principally responsible for the hemostasis. The gelatin is useless unless a sufficient quantity is injected, and repeated as long as the tendency to hemorrhage persists, and for a few days afterward. There are no contra-indications. The temperature commences to rise a few hours after the injection in nearly every instance, sometimes accompanied by a chill, and may reach 102 or 103, or even to 104 F., but is lower at each succeeding injection. In one case a 3 per cent. solution was used, and three tumors developed under cool skin, quite tender, but subsiding in a couple of days. Urticaria was observed several times in one case. These by-effects are disturbing to nervous patients, but their inconveniences are not sufficient to prohibit the use of the gelatin in case of severe internal hemorrhages. The degree of pain of the injection is proportional to the tension of the tissues. The gelatin is absorbed in a few minutes to twenty-four hours or longer. Absorption is more rapid in lean patients with loose subcutis and in patients who have lost much blood. The needle should be pointed in various directions to distribute the gelatin as much as possible. The urine was free from blood in eight days after commencing the injections in a case of acute hemorrhagic nephritis. In a case of aneurysm of the pulmonary artery, systematic injections were followed by the retrogression and final disappearance of all the symptoms of perforation, including a palpable, fluctuating tumor under the skin.

Centralblatt f. d. Grenzgebiete (Jena), August 10.

Surgical Treatment of Essential Epilepsy. A. PILCZ.—An array of 105 communications on the surgical treatment of essential epilepsy, is reviewed in this article, including Beck's and Laplace's articles in THE JOURNAL in 1897 and 1899. Pilcz concludes that on the whole we may safely assume that operation is useless. Neither sympathectomy nor craniotomy is capable of insuring a permanent cure nor even a lasting improvement. He personally considers these operations as more serious than usually accepted. Graf, for instance, reports a mortality of 6.1 per cent. from trephining. Three cases of death after sympathectomy have recently been reported, including two reported by Braun, out of nine in which he had operated without a single success.

Muenchener Med. Wochenschrift, August 20.

Stab Wounds of Diaphragm. C. SCHLATTER.—Frey collected 33 cases of stab wounds of the diaphragm, all fatal but 4, generally from incarceration of the protruding intestine. Schmidt, on the other hand, collected 43 cases in which operation resulted in the recovery of all but 6. When death occurred it was always in the first few hours. These figures indicate the necessity of operative treatment, and the danger of delay. They justify Postempski's recommendation of investigating the wound in the diaphragm with the disinfected forefinger, enlarging the external wound for the purpose if necessary. Schlatter reports 2 cases of stab wound in the lower portion of the thorax, with evidences of hemorrhage into the pleural cavity. The symptoms of marked anemia—scarcely to be attributed to a hemorrhage from the lungs on account of the limited area of dulness—and the vomiting, suggested injury of the diaphragm. The dyspnea and results of percussion and auscultation were not pathognomonic. In one of his cases, a rib had been cut by the blow and he surmised deep injury. He, therefore, resected the ninth rib and enlarged the wound found in the diaphragm from 3 to 8 cm. Blood poured out from the abdomen. The forefinger introduced through the diaphragm revealed an incision 2.5 cm. deep in the edge of the liver and another, shallower, lower down. The bleeding was

checked by compression, when it was found that the kidney had also been incised to a depth of 8 cm. and more. The wounds in liver and kidney were disinfected with small gauze sponges, and the incision in the kidney was sutured with 5 stitches taken deep in the parenchyma. The larger incision in the liver was sutured with 4 stitches through the parenchyma and capsule, and the smaller, with a single stitch. The bleeding was immediately arrested. The abdominal cavity was then cleansed of the accumulated blood with gauze sponges, and the wounds in the diaphragm and pleura sutured with silk. The wound in the skin was then sutured without drainage and the patient rapidly recovered with no symptoms of any reaction on the part of the peritoneum or pleura. He left the hospital in thirty days and continued his mountain climbing without the slightest inconveniences. This patient was a printer, 24 years old. The second patient was 17, and the stab wound was in the seventh interspace, and extended into the pleural cavity. The eighth rib was resected and an incision 3 cm. in length discovered in the diaphragm. A sound introduced failed to demonstrate any opening in the peritoneum. A vessel in the wound in the diaphragm was bleeding profusely. This was ligated and the wound in the diaphragm closed by four silk stitches. After removal of the blood clots from the pleural cavity the wound was sutured, leaving a gauze drain. The cyanosis and dyspnea seemed somewhat intensified by the operation, but soon subsided. Slight temperature was observed the third day, but otherwise recovery was uneventful and rapid. The patient was dismissed in thirty-three days completely recovered. Schlatter observes that the immigration of Italian laborers may increase the frequency of such wounds, as almost all of the 89 cases of stab-wounds of the diaphragm on record were inflicted by Italians. In a case he published a few years ago, a portion of the omentum, the size of a fist, protruded from the wound in the pleura. He was able to reduce the hernia and suture the diaphragm with six silk stitches and patient recovered.

Thrombosis of Left Innominate Vein with Pericarditis. P. v. ZEZSCHWITZ.—A case is described of thrombosis of the left innominate vein from compression, the consequence of a pericardial exudate superposed on a pleuritic effusion. The latter alone had been diagnosed, and the unilateral hydrothorax of 5 liters was a surprise, also the condition of the heart, which was found small, but intact. Immediately after evacuation of the pleural effusion by puncture during life, the hitherto inaudible heart sounds became distinct, but they disappeared again as the pleural area of dulness increased.

Tracheal Hemoptysis. G. AVELLIS.—Obstinate constipation and hemorrhoids with violent straining at stool for years, resulted in a varicose condition of the veins in the anterior upper space between the rings of the trachea in a case described. The consequences were occasional hemorrhage from the dilated veins. The cause of the hemoptysis was surmised by Avellis from theoretical study of the conditions, and on examination the varicose veins were discovered at the point where he had anticipated finding them. Cauterization of the dilated veins soon cured the tendency.

Medicinal Phosphorus Poisoning. NEBELTHAU.—A child of 2 years took 3 mg. of phosphorus in the course of sixty hours, combined with cod-liver oil in the usual proportions. The child was well-nourished, but showed symptoms of rachitis. Symptoms of rapidly fatal phosphorus intoxication developed, confirmed by the pathologic changes in the organs. In future, Nebelthau proposes to reduce the proportion of phosphorus from .01 to .001 per cent., a teaspoonful twice a day, not increasing the dose until convinced of its harmlessness.

Wiener Klinische Wochenschrift, August 8.

Collateral Arterial Circulation after Complete Obliteration of all the Arteries at the Arch of the Aorta. W. TUERK.—The origins of all the large arteries in the arch of the aorta were completely obliterated by an endo-arteritis on a basis of lues. The clinical picture was the exact reverse of what is observed in stenosis of the isthmus of the aorta. The patient was a baker's assistant, 44 years old. All the arteries in the trunk, head and extremities were almost if not entirely pulseless, while the cervico-abdominal aorta and the femoral arteries pulsated vigorously. The entire trunk, especially the back, was covered with dilated, tortuous and strongly pulsating arterial vessels, with an upward current. There was also a small aneurysm on the arch of the aorta compressing the left recurrent laryngeal nerve. The right coronary artery was also occluded. The only symptoms had been occasional pains, as from pressure, in the extremities and weakness, with slight transient vertigo on exertion. The arms toward the last became easily fatigued and the patient became emaciated, with symptoms indicating the small aneurysm. The remarkable feature of the case was that the symptoms were so few and slight when the supply of blood to the brain, neck and arms had been completely cut off for a long time, without essential functional disturbances.

August 15.

New Blotting-Paper Test of the Blood. S. PERTOT.—The factors that enter into the absorption of fluids by a porous substance are both physical and chemical. Pertot suggests a new method of clinical diagnosis of the blood at the bedside, which is based on absorption, and is so simple and inexpensive that it is within the reach of every one. All that is required is a square of good blotting paper about the size of a playing card. A small amount of blood is aspirated in a pipette and mixed with water, in the proportion of 2.5 cm. to 1 cm. The blotting paper is placed on a sheet of glass and the pipette is placed inverted upon it, held perpendicularly in a small standard, just touching the paper. The fluid is slowly absorbed by the paper, and forms rings of various hues, the tints and size of the rings characteristic of the different composition of the blood. Two pipettes are always used, in one the blood is diluted with water from the faucet and in the other with distilled water, as the resulting pictures differ with these media, probably owing to the presence of salts in the undistilled water. Pertot has made hundreds of these blotting-paper pictures of the blood, and found them invariably identical under the same conditions of health and disease. The color fades in time, but the rings are still perceptible. The clearest pictures were obtained with the blood of new-born infants; their blood contains a larger proportion of reds than that of adults. Paper treated with dilute hydrochloric acid exhibits a picture resembling a narcissus flower.

Operative Evacuation of Mastoid Abscess with Schleich's Local Anesthesia. G. ALEXANDER.—Eleven cases are described in which general narcosis was contra-indicated on account of pregnancy, pleuritis, nephritis, severe anemia, or other cause, and the operation was performed under local anesthesia alone in Politzer's clinic. The conditions of success are that the patient retain the same position throughout the entire operation and if pain is experienced, that he announce it to the operator without immoderate manifestations. These conditions were fulfilled in all but one case, and in this, the operation was successfully concluded in spite of the patient's restlessness. The ear affection had lasted from three weeks to eight months in the various cases. The amount of fluid used varied from 35 to 70 c.c., corresponding to 7 to 14 cg. of cocain, but as most of it is evacuated at once by the operation, very little can be absorbed. Each step of the operation is preceded by thorough infiltration of the soft parts down to the bone, especially of the attachment of the sterno-cleido-mastoid muscle, which is pushed back to expose the bone completely. The deeper portions of the bone are injected merely to anesthetize the granulations and swollen endostium. Solid bone is not sensitive. Chiseling the process is felt as a mere pounding, disagreeable, but not painful. The noise is reduced by covering the face of the mallet with gauze, and the patient's attention should be diverted at first by conversation with an attendant. The analgesia is not so complete as in general narcosis, but the superior advantages in certain cases are so marked that the method is recommended for all tranquil, trusting patients. Even nervous, excited patients may become tranquil during the operation. All the patients made a

normal recovery. In five cases no pain was experienced and the patients had appetite for lunch. In the others, there was moderate pain in the wound or head. In two cases the patients vomited several times, and in one, radiating pains were experienced in the upper jaw for a time.

Xeroderma Pigmentosum. A. HALLE.—Only two cases of complete recovery from this affection are on record, although a few authors have reported long survivals. Most of the subjects die in youth, generally from carcinoma cachexia. A personal observation is described in detail. On the basis of this case and those in the literature, Halle is convinced that the influence of sunlight in this affection has been exaggerated, and that it is a factor only in the initial erythema. The succeeding manifestations, the pigmented hypertrophy, the atrophy of the skin, the tendency to malignant proliferation of the epithelium, suggest the assumption of premature senility as a more plausible explanation of the cause of the disease.

Vratch (St. Petersburg), August 3.

Peritoneal Adhesions. E. Y. KATUNSKY.—Peritoneal adhesions in general, and especially the typical adhesion described by Gersuny, afford very important information in regard to abdominal affections and the organs of the abdominal cavity, including the female internal genital organs. It is of the greatest importance to determine the presence or absence of peritoneal adhesions before operating, and even before deciding on the method of operation. The existence of peritoneal adhesions—even if merely suspected—is an argument against the vaginal route. Much research is needed to establish the typical objective signs of various peritoneal adhesions, the origin, the clinical picture and the appropriate operation. Among the cases cited is that of a boy who was suddenly seized with vomiting spells eleven months after contusion of the abdomen. The appetite was good and there was no nausea, but pains appeared in the epigastric region four or five hours after eating. This region was also abnormally protuberant. The laparotomy showed that the upper surface of the transverse colon was adherent to the peritoneum and small intestine its entire length. In another case, in which the liver, gall-bladder and transverse colon were connected by peritoneal adhesions, the symptoms had been oppression and pains in the epigastric region after eating, nausea, vomiting, occasionally hemorrhagic, eructations with the odor of rotten eggs, and constipation. The patient was an adult with a history of contusion of the abdomen fifteen years before. The lesion had been diagnosed an ulcer of the stomach before operating.

[Gersuny's typical adhesion, described in the *Arch. f. Klin. Chir.* lix, p. 102, was discovered in twenty-one cases, all characterized by an identical clinical picture. The pseudo-membranous band is about 4 cm. long by 2 or 3 wide, and runs parallel with the outer layer of the mesocolon, from the point where the latter is attached to the intestine to its origin in the parietal peritoneum. The band may be adherent to the mesocolon or stretch above it like a bridge. In either case it prevents any movement of the intestine from the lateral abdominal wall toward the median line, and may cause volvulus, or invagination of the sigmoid flexure into the rectum, according as the sigmoid mesocolon is abnormally long or short. In other cases, the symptoms are constant pain in the lower abdomen, with violent pain in the left side just before defecation, and generally chronic constipation. The appendix was palpable and tender, and the left side still more sensitive at a symmetrical point. The pains were usually increased by movements, and consequently the working capacity was much diminished. According to the patients' stories there was no preceding illness, and the pains maintained their characteristics in spite of all kinds of treatment, for years, unmodified. In 2 cases there was a history of perityphlitis; in 1 an intestinal catarrh, and in 1 the pains were first noticed after lifting a heavy weight and persisted unchanged for six years until operated on. All but 3 were women, and Gersuny is inclined to attribute the adhesion to some effusion of blood into the peritoneum, occurring without symptoms, during menstruation or from trauma, in a certain proportion of the cases, which may likewise explain the etiology of appendicitis. Inflammation may develop secondarily to the formation of the adhesion and restriction of the movements of the appendix. The adhesion is not found unless carefully sought for, lifting up the colon and tracing the sensitive region inward from the anterior iliac spine. Irrigation and abdominal massage may be required to complete the cure. All Gersuny's patients were cured or very much improved by the operation.—ED.]

Queries and Minor Notes.

CHAPARRO ARMAGOSO.

CAMERON, TEXAS, Aug. 29, 1901.

To the Editor:—In reference to the query of S. A. F., in THE JOURNAL of August 24, I beg leave to submit the following:

Chaparro Armagoso is Spanish for bitter chaparro, a thorny bush that grows in Southern Texas and Northern Mexico. Synonym: armagoso; chaparro bush; goat bush.

Part used: bark of root. Natural order: Simarubaceæ. Properties: tonic, astringent, and somewhat antiperiodic.

It is much used in this section for chronic dysentery, and is an excellent remedy in doses of 30-60 minims of fluid extract. The history of its use is about as follows: It has long been used by the Mexicans in the form of a tea made from the root. A physician of Southwestern Texas, seeing the success attending its use, sent the root to one of the manufacturers, who prepared from it a fluid extract. It is prepared by Parke, Davis & Co., and perhaps by others. Respectfully, R. L. JONES, M.D.

TREATMENT OF TUBERCULOSIS WITH TUBERCULIN.

DENVER, Sept. 2, 1901.

To the Editor:—In THE JOURNAL of July 13, page 151, there is a paper copied from a German medical journal, "Treatment of Tuberculosis with Tuberculin," by Dr. Goetsch. I am most anxious to get some of the tuberculin used by him for the treatment of cases now under my care. Could you tell me in next issue of THE JOURNAL or as soon as convenient where and how it may be obtained? And much oblige, Yours, etc., A. E. F.

ANS.—Koch's tuberculin T. R. can be obtained from Victor Koechl & Co., New York City. Dr. Goetsch used both the old and the new tuberculin. The original article was published in the *Deutsche Med. Wochenschrift*, June 20.

STATISTICS IN REGARD TO TYPHOID FEVER.

A correspondent is anxious to get the following statistics in regard to typhoid fever: 1. Number of cases that occur annually. 2. Number of deaths annually from typhoid. 3. Percentage of deaths from hemorrhage and perforation, respectively.

X-RAY DERMATITIS.

WAYCROSS, GA., Aug. 23, 1901.

To the Editor:—Can you advise me where I can get literature on constitutional effects (if any) of *x*-ray burns? I have a case in which the patient has developed various nervous troubles. I would also be pleased to have your opinion in regard to after-effects from *x*-ray dermatitis, and death of soft parts from same cause; does sloughing take place shortly after burn is received, or at a remote period? Thanking you in advance for courtesy,

Yours truly, R. P. I.

ANS.—Some cases are on record in which exposure up to an hour with non-focused tubes produced no inflammation of the skin, but accumulative effects from numerous exposures are to be borne in mind and feared. Single exposures of much less duration with focused tubes have been followed by severe burns of *x*-ray dermatitis. The symptoms of the mild form consist of inflammation, hyperemia, papules, vesicles, itching with marked pigmentation, loss of the fine lanugo hairs, and marked diminution of sweat and sebaceous secretions. This in turn may be followed by the graver condition characterized by sloughing of greater or less degree, dependent upon individual peculiarities. Dermatitis may appear any time from three to fourteen days after exposure, and sloughing may occur either during this or at a later period. A year or more may be required for recovery in the graver cases, and is accomplished usually either by skin grafting or cicatrization. The following references may be consulted: *Deutsche Medicinische Wochenschrift*, 1896, No. 30, p. 481 (Marcuse); ibid., No. 41, p. 665 (Sehrwald); ibid., No. 42, p. 681 (Marcuse); ibid., 1897, No. 7, p. 105 (Forster); ibid., No. 26, p. 417 (Mies); *Berliner Klinische Wochenschrift*, No. 23, 1898 (Behrend); *Johns Hopkins Bulletin*, February, 1897, 23 cases by Gilchrist. See various articles and abstracts in THE JOURNAL.

Books Received.

TRANSACTIONS OF THE MEDICAL ASSOCIATION OF GEORGIA. Fifty-second Annual Session, 1901. Cloth. Pp. 436. Atlanta, Ga.: Published by the Association. 1901.

THE ELEVENTH ANNUAL REPORT OF THE EYE, EAR, NOSE AND THROAT HOSPITAL, of New Orleans, La., Jan. 1, 1900, to Dec. 31, 1900. Paper. Pp. 53. New Orleans: L. Graham & Son, Ltd. 1901.

THE FOOD VALUE OF MEAT. FLESH FOOD NOT ESSENTIAL TO MENTAL AND PHYSICAL VIGOR. Illustrated. By W. R. C. Latson, M.D., editor of Health-Culture. Cloth. Pp. 72. Price, 50 cents; paper, 25 cents. New York: The Health-Culture Co.

THE ESTIVO-AUTUMNAL (Remittent) MALARIAL FEVERS. By Charles F. Craig, M.D. (Yale), Acting Assistant-Surgeon, U. S. A. Illustrated by 2 Colored Plates and 21 Clinical Charts. Cloth. Pp. 221. Price, $2.50. New York: William Wood & Co. 1901.

PRACTICAL FIRST PRINCIPLES. Simplifying the Study of Normal and Abnormal Structure and Function, and Aiding Diagnosis. Designed for the Use of Students and Practitioners of Medicine. By A. H. P. Leuf, M.D., Associate Editor of the *Medical Council*. Cloth. Pp. 105. Price, $1.00 net. Philadelphia: The Medical Council. 1901.

THE READY REFERENCE HANDBOOK OF DISEASES OF THE SKIN. By George Thomas Jackson, M.D., Chief of Clinic and Instructor in Dermatology, College of Physicians and Surgeons, New York. With 80 Illustrations and 3 Plates. Fourth Edition, thoroughly revised. Cloth. Pp. 642. Price, $2.75. New York and Philadelphia: Lea Brothers & Co. 1901.

New Patents.

Patents of interest to physicians, issued August 20 and 27:

680,689. Device for distributing odors. Charles T. Bradshaw, Philadelphia.

681,100. Disinfectant holder. Daniel N. Calkins, Rochester, N. Y.

680,723. Depurator. Ruth J. Maurer, La Crosse, Wis.

680,936. Bristle probang. Richard P. McCully, Brooklyn, N. Y.

680,814. Invalids' bed. Patrick C. Smith, Indianapolis, Ind.

680,898. Machine for impregnating thread with virus. O. Thomas, Verdun, France.

681,174. Treating curvature, etc. K. Wegner and E. Repke, Berlin, Germany.

681,010. Vaginal syringe. Frank Y. Wilhoft, New York City.

34,964. Design, electrotherapeutic device. B. G. Stauffer, Harrisburg, Pa.

681,664. Exercising apparatus. John S. Addleman, Cleveland, Ohio.

681,387. Speculum and medicine distributor. Martin Bohlig, St. Paul, Minn.

681,494. Chin rest for ophthalmometers. John E. Chambers, Chicago, Ill.

681,622. Respirator. Harvey S. Cover, South Bend, Ind.

681,498. Separator for cellulose. Robert Dietrich, Merseburg, Germany.

681,631. Bath cabinet. Warren A. Durrin, Woodville, Wis.

681,483. Sterilized surgical dressing. Henry C. Lovis, New York City.

681,568. Making ammonium ichthyol sulfonate. A. C. McLaughlin, Austin, Tex.

681,505. Quinin methyl-dihydrazin perchlorate and making same. Max Meyer, New York City.

681,331. Combination massage roller and exerciser. Geo. W. Milkman, New York City.

681,333. Spitting pot. John F. T. Mjoen, Christiania, Norway.

681,338. Ether inhaler. Gustav Otto, Jersey City, N. J.

681,463. Apparatus for treating diseases. H. E. Waite, New York City.

681,289. Apparatus for rendering water pure. J. S. Wrightnour, Oil City, Pa.

34,994. Design, inhaler. Moriz Bauer, Vienna, Austria-Hungary.

34,995. Design, bag for ice or water. C. W. Meinecke, Jersey City, N. J.

The Public Service.

Army Changes.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., August 22 to 28, 1901, inclusive:

John R. Clark, contract surgeon, from duty at the General Hospital, Presidio of San Francisco, Cal., to his home in New York City, for annulment of contract.

Guy L. Edie, major and surgeon, U. S. A., sick leave extended.

William R. S. George, contract surgeon, to proceed to Ponce, P. R., for duty during the absence on leave of Captain Benjamin Ten Eyck; on completing this duty he will rejoin his proper station, San Juan, P. R.

William O. Owen, major and surgeon, U. S. A., leave of absence granted.

James Reagles, contract surgeon, leave of absence from the Department of the Columbia extended.

Roy A. Wilson, contract surgeon, previous orders requiring him to proceed to San Francisco, Cal., en route for duty in the Philippines revoked.

Navy Changes.

Changes in the Medical Corps of the Navy, week ended Aug. 31, 1901:

P. A. Surgeon R. M. Kennedy detached from the *Bennington* when placed out of commission, and ordered home.

P. A. Surgeon D. H. Morgan, detached from the *Monongahela*, and ordered to the Naval Hospital, Newport, immediately, for treatment.

Asst.-Surgeon R. T. Atkinson, detached from the Washington Hospital, and ordered to the *Wabash*, immediately.

Asst.-Surgeon A. W. Balch, detached from the *Wabash* and ordered to the *Monongahela*, immediately.

Medical Inspector D. N. Bertolette, detached from the *New York* and ordered to the *Brooklyn* as Fleet Surgeon.

Surgeon J. E. Gardner, detached from the *Brooklyn* and ordered to the *New York*.

Asst.-Surgeon J. M. Brister, assigned to the Marine Brigade, Asiatic Station.

Marine-Hospital Changes.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the U. S. Marine-Hospital Service, for the seven days ended Aug. 29, 1901:

Surgeon Preston H. Bailhache, detailed as delegate to represent the service at the meeting of the American Public Health Association, to be held in Buffalo, N. Y., September 16-20.

P. A. Surgeon A. C. Smith, granted leave of absence for one day, Aug. 21, 1901, under paragraph 181, Regulations, U. S. Marine-Hospital Service.

A. A. Surgeon W. C. Todt, granted leave of absence for 14 days from August 18.

Hospital Steward F. S. Goodman, granted leave of absence for thirty days from September 1.

Hospital Steward C. A. Warhanik, granted leave of absence for thirty days from September 4.

Hospital Steward L. P. Hall, relieved from duty at Boston, Mass., and directed to proceed to Vineyard Haven, Mass., and report to medical officer in command for duty and assignment to quarters.

RESIGNATION.

Hospital Steward C. A. Warhanik resigned, to take effect Oct. 4, 1901.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, U. S. Marine-Hospital Service, during the week ended Aug. 31, 1901:

SMALLPOX—UNITED STATES.

California: San Francisco, Aug. 11-18, 1 case.
Illinois: Freeport, Aug. 17-24, 1 case.
Maine: Aroostook County, Aug. 2, present.
Massachusetts: Boston, Aug. 17-24, 5 cases, 2 deaths.
New Jersey: Newark, Aug. 17-24, 5 cases, 2 deaths.
Pennsylvania: Philadelphia, Aug. 17-24, 7 cases, 1 death; Pittsburg, Aug. 19-24, 1 death.
Wisconsin: Green Bay, Aug. 18-25, 3 cases.

SMALLPOX—FOREIGN.

Brazil: Rio de Janeiro, July 14-28, 64 deaths.
Canada: Woodstock, District, Aug. 2, 80 cases.
Colombia: Panama, Aug. 12-19, 7 cases.
Ecuador: Guayaquil, June 12-22, 3 deaths.
Great Britain: London, Aug. 2-10, 11 cases, 1 death.
India: Bombay, July 23-30, 2 deaths; Calcutta, July 20-27, 4 deaths; Madras, July 20-26, 3 deaths.
Italy: Messina, Aug. 3-10, 5 cases, 2 deaths; Naples, Aug. 4-11, 123 cases, 26 deaths.
Japan: Osaka and Hiogo, July 22-27, 1 case.
Netherlands: Rotterdam, July 27-Aug. 10, 3 cases.
Spain: Malaga, July 1-31, 2 deaths; Valencia, July 27-Aug. 3, 11 deaths.
Straits Settlements: Singapore, July 13-20, 1 death.
Uruguay: Montevideo, July 6-20, 43 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, July 14-20, 7 cases.
Cuba: Havana, Aug. 10-17, 1 case, from Fincia Riquena.
Mexico: Tampico, July 26-Aug. 2, 2 cases, 1 death; Vera Cruz, Aug. 10-17, 6 cases, 2 deaths.

CHOLERA.

India: Bombay, July 23-30, 5 deaths; Calcutta, July 20-27, 22 deaths; Madras, July 20-26, 1 death.
Japan: Yokohama, July 31, 1 case.
Java: Batavia, July 13-20, 10 cases, 6 deaths.

PLAGUE—INSULAR.

Philippines: Manila, July 6-13, 12 cases, 10 deaths.

PLAGUE—FOREIGN.

Brazil: Rio de Janeiro, July 20-28, 3 deaths.
India: Bombay, July 23-30, 113 deaths; Calcutta, July 20-27, 16 deaths; Karachi, July 21-28, 5 cases, 7 deaths.